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City of Birmingham.

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REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR

1916.

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BIRMINGHAM :

HUDSON AND SON, PRINTERS, EDMUND STREET AND LIVERY STREET.

1917.









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PUBLIC HEALTH DEPARTMENT,

THE COUNCIL HOUSE,

BIRMINGHAM,

*June, 1917.*

TO THE CHAIRMAN AND MEMBERS OF THE PUBLIC HEALTH  
COMMITTEE.

GENTLEMEN,

During the year 1916 Birmingham has maintained its position as one of the healthiest of the large manufacturing towns, not only of this country, but of other civilised lands.

The general death-rate was 13·5 per 1,000. The infant mortality rate was 104 per 1,000 births. The total number of new cases of enteric fever was 19. The incidence of the infectious diseases was comparatively low.

All our statistics show that there is a progressive improvement in the health of the people.

There is, however, much to be done yet before it can be said that the community as a whole has a chance of living under conditions which are necessary for good health and a happy life.

The most urgent matter to attend to immediately after the war is the condition of housing in the central areas of the city. It is not enough to provide mere house room—the environment must also be put right, or great expense will be incurred later in undoing what is now to be done. For this reason, I am sure, it will be wise to proceed to obtain Town Planning powers for the central area of the city before work is commenced to improve this area. At present there is a large artisan population living near the centre of the town, with a general death-rate nearly twice as high as other artisan areas. In this area the infant mortality rate is also twice as high. The mortality from phthisis is twice as high. The mortality from measles is more than three times as high, while that from enteritis and diarrhoea is four times as high. (For details, see table on page 9.)

The Department has been further depleted of skilled staff during the year. Those who have gone have in part been replaced by older men, few of whom have had any training. All have combined with a will to get the best work done, and I am glad to say that on the whole they have been quite successful.

I am, Gentlemen,

Your obedient servant,

JOHN ROBERTSON, M.D., B.Sc.



# City of Birmingham.

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## REPORT OF THE MEDICAL OFFICER OF HEALTH

*For the year 1916.*

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### POPULATION.

The Registrar-General estimates the population of Birmingham to have been 847,555 on the 30th June, 1916. The local estimate, which is probably much more accurate because of local knowledge, was 895,678. These populations would give a death-rate of 14·3 per 1,000 when the Registrar-General's estimate is used, and of 13·5 when the local estimate is used—a difference of 0·8 per 1,000.

### MARRIAGES.

There were 8,047 marriages, as against 9,975 in 1915. The marriage rate was 18·0 per 1,000, as compared with 22·4 in 1915 and 17·0 in 1914.

### BIRTHS.

There were 20,618 babies born alive, as compared with 21,187 in the preceding year. The birth-rate was, therefore, 23·1 per 1,000, as compared with 23·8 in 1915, and 26·4 in 1914. The table on page 8 gives the birth-rate for each ward. It will be noted that the rate for Edgbaston Ward was 15·3 per 1,000, while that for Duddeston and Nechells was 30·9 per 1,000.

### ILLEGITIMACY.

There were 717 illegitimate births in 1916, as against 702 in 1915. This represents 3·5 % of the total births in 1916 and 3·3 % in 1915, both of which are comparatively low rates. With the alteration in the constitution of the population, some increase in the number of illegitimate births must be expected, for a large number of men have been removed, and a correspondingly large number of young unmarried women have been brought into the city to replace these men.

### NOTIFICATION OF BIRTHS ACT.

This Act continues to be of great service; 19,937 live-births were notified, *i.e.*, 97 % of the total births. There were also 729 still-births reported. Over 82 % of the notified births were visited by the Health Visitors and Infant Visitors.

### DEATHS.

There were 12,081 deaths recorded during the year 1916, as compared with 12,816 in 1915. The death-rate was 13·5, as compared with 14·4 in 1915.

## DEATH-RATE PER 1,000 IN BIRMINGHAM.

			Birmingham.	England and Wales.
1871-1875	(Old City) ...	...	25.2 ...	22.0
1876-1880	" ...	...	22.8 ...	20.8
1881-1885	" ...	...	20.7 ...	19.4
1886-1890	" ...	...	20.2 ...	18.9
1891-1895	" ...	...	20.3 ...	18.7
1896-1900	" ...	...	20.5 ...	17.7
1901-1905	(Extended City) ...	...	16.5 ...	16.0
1906-1910	" ...	...	15.0 ...	14.7
1911-1915	" ...	...	14.6 ...	14.1
1916	" ...	...	13.5 ...	14.0

## COMPARATIVE DEATH-RATES IN SIX LARGEST TOWNS.

(From Registrar-General's Figures.)

Glasgow	...	...	...	...	...	15.2 per 1,000
Birmingham	...	...	...	...	...	13.8 "
Liverpool	...	...	...	...	...	18.6 "
Manchester	...	...	...	...	...	15.5 "
Sheffield	...	...	...	...	...	15.1 "
Leeds	...	...	...	...	...	15.4 "

## DEATH-RATES IN WARDS.

It will be noted from the table below that the highest death-rates were recorded in St. Mary's and St. Martin's wards, while the lowest were in Erdington South and King's Norton wards.

## BIRTH AND DEATH-RATES, 1916.

Ward.	Birth-Rate.	Death-Rate.
Acock's Green ...	22.7	11.0
All Saints' ...	26.6	13.3
Aston ...	28.8	13.7
Balsall Heath ...	19.5	12.5
Duddeston and Nechells ...	30.9	19.7
Edgbaston ...	15.3	12.1
Erdington North ...	19.4	12.7
Erdington South ...	19.8	7.9
Handsworth ...	18.0	9.8
Harborne ...	19.0	9.9
King's Norton ...	21.3	9.1
Ladywood ...	25.8	14.9
Lozells ...	20.8	12.4
Market Hall ...	19.8	16.5
Moseley and King's Heath ...	15.7	9.8
Northfield ...	19.1	10.6
Rotton Park ...	23.8	13.7
St. Bartholomew's ...	28.8	17.0
St. Martin's ...	28.0	21.2
St. Mary's ...	29.3	22.4
St. Paul's ...	28.9	18.7
Saltley ...	26.0	12.2
Sandwell ...	19.3	9.9
Selly Oak ...	24.0	10.5
Small Heath ...	21.8	11.5
Soho ...	19.3	12.2
Sparkbrook ...	23.0	12.4
Sparkhill ...	17.6	9.7
Washwood Heath ...	23.8	11.8
Yardley ...	19.4	10.8

A special table is here inserted showing mortality and other figures for two areas, one a poor class artisan area, and alongside this an area of somewhat similar size occupied by a better-class artisan population.



COMPARISON OF TWO AREAS IN BIRMINGHAM.  
*Five Years, 1912—1916.*

	POOR CLASS ARTISAN AREA— St. Mary's, Duddeston, St. Bartholomew's and St. Martin's Wards.				BETTER CLASS ARTISAN AREA— Saltley, Small Heath, Sparkbrook and Edsall Heath Wards.			
Population (1914) ... ..	...	...	...	154,662	...	...	...	133,623
Area ... ..	...	...	...	1,821	Acres.	...	...	2,998 Acres.
Houses (1914) ... ..	...	...	...	33,471		...	...	30,172
Total deaths (5 years) ... ..	...	...	...	16,348		...	...	8,196
Death-rate, 1912-1916 ... ..	...	...	...	21.1		...	...	12.3
Total births (5 years) ... ..	...	...	...	25,388		...	...	16,053
Birth-rate ... ..	...	...	...	32.8		...	...	24.0
Total infant deaths ... ..	...	...	...	4,329		...	...	1,430
Infant mortality rate ... ..	...	...	...	171		...	...	89
Pulmonary Tuberculosis, deaths ... ..	...	...	...	1,511		...	...	742
Pulmonary Tuberculosis, death-rate ... ..	...	...	...	1.95		...	...	1.11
Measles, deaths ... ..	...	...	...	647		...	...	161
Measles, death-rate ... ..	...	...	...	.83		...	...	.24
Deaths from diarrhoea and enteritis, under 2 years ... ..	...	...	...	1,126		...	...	238
Diarrhoea and enteritis, death-rate ... ..	...	...	...	1.46		...	...	.36

The statistics for the three model estates for 1916 are set out below :—

	Estimated Population.	Birth-Rate per 1,000.	Death-Rate per 1,000.	Infant Mortality per 1,000 Births.
Bournville ... ..	4,150	10.9	6.3	44
Harborne Tenants ... ..	1,750	13.7	6.9	42
Ideal Estate, Bordesley Green ... ..	1,200	22.5	4.2	37
Total for three Estates, 1915 ... ..	7,100	13.6	6.1	42

The chief causes of death in the city during 1916 are shown in the next table.

CHIEF CAUSES OF DEATH.

	No. of Deaths in 1916.	Increase or Decrease compared with 1915.
Organic Diseases of Heart ... ..	1,290	+ 34
Bronchitis ... ..	1,148	- 71
Pulmonary Tuberculosis ... ..	1,107	- 34
Other Forms of Tuberculosis ... ..	217	- 19
Pneumonia ... ..	1,006	-134
Cancer ... ..	897	+ 12
Old Age ... ..	629	- 8
Diarrhoea and Enteritis ... ..	489	-195
Cerebral Hæmorrhage ... ..	467	- 92
Premature Birth ... ..	404	+ 3
Whooping-Cough ... ..	378	+257
Accidents and Negligence ... ..	358	- 44
Nephritis and Bright's Disease ... ..	307	- 19
Infantile Debility, Icterus, etc. ... ..	263	- 96
Convulsions (under 5) ... ..	165	+ 11
Arterio-sclerosis ... ..	156	+ 21
Influenza ... ..	146	—
Meningitis ... ..	119	- 27
Diphtheria ... ..	116	- 19
Measles ... ..	101	-319

The rate of mortality at various age periods during 1916 was as follows :—

				Deaths.	Death-Rate per 1,000.
Under 1 year ...	...	...	...	2,142	106.9
1 and under 2 ...	...	...	...	737	39.2
2     "     3 ...	...	...	...	278	13.6
3     "     4 ...	...	...	...	156	7.7
4     "     5 ...	...	...	...	104	5.3
5     "    10 ...	...	...	...	268	2.9
10    "    15 ...	...	...	...	185	2.1
15    "    20 ...	...	...	...	198	2.4
20    "    25 ...	...	...	...	227	2.8
25    "    35 ...	...	...	...	613	3.9
35    "    45 ...	...	...	...	879	7.1
45    "    55 ...	...	...	...	1,240	15.0
55    "    65 ...	...	...	...	1,509	29.6
65 and upwards	...	...	...	3,545	95.3

#### INFANT MORTALITY.

(See special report at the end of this report.)

#### INFECTIOUS DISEASES.

The deaths during 1916 from the more important infectious diseases were as follows :—

DISEASE.			Deaths in 1916.		Average 1906-15.		Above or below the average.
Enteric Fever ...	...	...	5	...	36	...	— 31
Smallpox ...	...	...	0	...	0	...	—
Measles ...	...	...	101	...	357	...	—256
Scarlet Fever ...	...	...	26	...	120	...	— 94
Whooping Cough ...	...	...	378	...	253	...	+125
Diphtheria ...	...	...	116	...	152	...	— 36
Diarrhoea and Enteritis ...	...	...	489	...	806	...	—317
Pulmonary Tuberculosis ...	...	...	1,107	...	1,002	...	+105
Other Forms of Tuberculosis	...	...	217	...	269	...	— 52

The prevalence of the notifiable diseases is shown in the next table :—

DISEASE.			Cases in 1916.		Average 1906-15.		Above or below the average.
Enteric Fever ...	...	...	19	...	166	...	—147
Smallpox ...	...	...	0	...	0	...	—
Measles ...	...	...	10,635	...	—	...	—
German Measles ...	...	...	4,996	...	—	...	—
Scarlet Fever ...	...	...	1,796	...	4,706	...	—2,910
Diphtheria ...	...	...	951	...	1,168	...	—217
Erysipelas ...	...	...	637	...	789	...	—152
Pulmonary Tuberculosis ...	...	...	3,388	...	—	...	—
Other forms of Tuberculosis	...	...	442	...	—	...	—
Cerebro-Spinal Fever ...	...	...	29	...	—	...	—
Acute Poliomyelitis ...	...	...	19	...	—	...	—
Puerperal Fever ...	...	...	170	...	76	...	+ 94
Ophthalmia Neonatorum ...	...	...	334	...	—	...	—

In addition to the above the following cases were reported by the elementary school teachers :—

		1916.	1915.	1914.	1913.
Whooping Cough ...	...	5,783	2,349	4,381	2,638
Chicken Pox ...	...	2,386	4,829	2,973	2,422
Mumps ...	...	1,582	4,459	2,285	4,253

## ENTERIC FEVER.

This disease has almost disappeared from Birmingham. Only 19 cases were notified and 5 deaths occurred in 1916.

Since 1901 the record has been as follows :—

				Cases.				Deaths.		Death-Rate for	
				No.	Rate.			No.	Rate.	England and Wales.	
1901	...	...	...	842	1·11	...		133	·18	...	·15
1902	...	...	...	718	·92	...		133	·17	...	·13
1903	...	...	...	517	·67	...		81	·10	...	·10
1904	...	...	...	350	·45	...		59	·08	...	·09
1905	...	...	...	292	·37	...		51	·06	...	·09
1906	...	...	...	286	·36	...		55	·07	...	·09
1907	...	...	...	360	·45	...		76	·09	...	·07
1908	...	...	...	261	·32	...		61	·07	...	·07
1909	...	...	...	179	·22	...		33	·04	...	·06
1910	...	...	...	122	·15	...		31	·04	...	·05
1911	...	...	...	148	·18	...		35	·04	...	·07
1912	...	...	...	102	·12	...		30	·04	...	·04
1913	...	...	...	102	·12	...		20	·02	...	·04
1914	...	...	...	67	·08	...		16	·02	...	·05
1915	...	...	...	31	·03	...		7	·01	...	·03
1916	...	...	...	19	·02	...		5	·01	...	·03

A small percentage of the 19 reported cases may not have been true Enteric Fever, while on the other hand it is possible that a few cases may have been overlooked. It may, therefore, be safely accepted that our total number did not exceed 19 in a population of 895,678.

## SMALLPOX.

No case of Smallpox was reported during the year 1916.

## VACCINATION.

The following statement shows the amount of vaccination performed in regard to infants whose births were registered during the year ending June 30th, 1916 :—

Births returned	...	...	...	20,107	
Conscientious objections...	...	...	...	2,967, or 14·7% of total.	
Died unvaccinated	...	...	...	1,699	
Successfully vaccinated	...	...	...	12,817, or 69·6% of survivors.	
Insusceptible	...	...	...	33, or 0·2%	„
Postponed by medical certificate	...	...	...	533, or 2·9%	„
Removed to other districts	...	...	...	227, or 1·2%	„
Lost sight of	...	...	...	896, or 4·9%	„
Still under notice	...	...	...	935, or 5·1%	„

## MEASLES AND GERMAN MEASLES.

The Public Health (Measles and German Measles) Regulations, 1915 (dated November 27th, 1915) came into operation on January 1st, 1916. These regulations require the parent or guardian when he becomes aware or has reasonable grounds for suspecting that a person is suffering from one of the diseases to report the case.\*

The regulations also require every medical practitioner to report cases (with certain exceptions) on whom he is in professional attendance.

January 1st, 1916, was the date on which complete compulsory notification of Measles and German Measles came into force. In Birmingham certain local powers were obtained in 1914 by local Act of Parliament, which came into operation in January, 1915. By this Act the parent or guardian of a child attending a school is required to report the occurrence (or his suspicion of the occurrence) of Measles, German Measles, Whooping Cough, or Chicken Pox in any member of the family to the head teacher of the school to which any child from his house goes.

In 1915 there were 8,824 cases of Measles and German Measles reported under the local requirements (420 deaths).

In 1916, with the added regulations, there were 15,631 cases reported (102 deaths).

The 15,631 cases probably represent a normal inter-epidemic year. But this is the first experience of notification in Birmingham, and, therefore, it is difficult to say what the incidence should be when no epidemic exists.

The yearly number of deaths in former years was our only guide as to measles prevalence. Since 1901 the figures have been as follows :—

	CASES.		DEATHS.		Death-Rate (Measles only).
	Measles.	German Measles.	Measles.	German Measles.	
1901	?	?	372	?	·49
1902	?	?	237	?	·31
1903	?	?	245	?	·32
1904	?	?	243	?	·31
1905	?	?	300	?	·38
1906	?	?	275	?	·34
1907	?	?	409	?	·51
1908	?	?	70	?	·08
1909	?	?	676	?	·82
1910	?	?	42	?	·05
1911	?	?	395	?	·47
1912	7,693*	1,088*	571	3	·67
1913	3,661*	85*	398	1	·46
1914	4,612*	61*	310	—	·35
1915	8,144*	680*	420	—	·47
1916	10,635	4,996	101	1	·11

\* Partial notification only.

Obviously, the mortality figures indicate the prevalence of severe types of the disease rather than general prevalence. It has been ascertained that in some areas from 90 to 95 per cent. of the children leaving the public elementary schools have had measles. If this is true for Birmingham, then on an average there ought to be 18,000 cases of ordinary measles, instead of the 10,635 cases which actually occurred. If a few of these cases are second attacks, then the numbers will be larger still. During the first five months of the year 1917, 12,852 cases of measles were notified, so that it seems probable that very few children in the city escape from an attack of ordinary measles.

If the figures for German measles can be relied on, it would appear that a very large part of the child population does escape this disease.

Ages of persons attacked by measles and German measles :—

	MEASLES.		GERMAN MEASLES.		* MEASLES.	
	Cases.	Rate per 1,000.	Cases.	Rate per 1,000.	Deaths.	Rate per 1,000.
0—	426	21·3	120	6·0	16	0·80
1—	809	43·0	153	8·1	45	2·39
2—	1,031	50·4	181	8·8	16	0·78
3—	1,080	53·6	214	10·6	9	0·45
4—	1,031	52·9	219	11·2	2	0·10
5—	5,063	54·1	2,247	24·0	11	0·12
10—	650	7·4	837	9·6	—	—
15—	226	2·7	385	4·6	1	0·01
20—	132	1·7	258	3·2	1	0·01
25—	130	0·8	247	1·6	—	—
35—	37	0·2	109	0·5	—	—
45—	18		22		—	—
55—	2		2		—	—
65—	—		2		—	—
75—	—		—		—	—

\* Only one death occurred from German Measles.

Distribution of new cases of measles and German measles, and of deaths from measles in Municipal wards in 1916.

WARD.	MEASLES		GERMAN MEASLES.		* MEASLES.	
	Cases.	Rate per 1,000.	Cases.	Rate per 1,000.	Deaths.	Rate per 1,000.
Acoek's Green ...	277	9·8	475	16·8	1	·04
All Saints' ...	664	15·2	234	5·4	9	·21
Aston ...	419	10·1	134	3·2	5	·12
Balsall Heath ...	535	13·2	205	5·0	2	·05
Duddeston and Nechells ...	305	7·3	23	0·6	15	·36
Edgbaston ...	443	12·8	298	8·6	3	·09
Erdington North ...	224	13·3	95	5·6	2	·12
Erdington South ...	176	9·8	194	10·8	—	—
Handsworth ...	403	14·9	263	9·7	—	—
Harborne ...	85	5·3	96	6·0	—	—
King's Norton ...	172	8·0	615	28·6	—	—
Ladywood ...	706	23·2	54	1·8	3	·10
Lozells ...	339	9·8	74	2·1	1	·03
Market Hall ...	302	16·3	37	2·0	9	·49
Moseley and King's Heath ...	145	5·4	369	13·7	—	—
Northfield ...	22	2·7	80	10·0	—	—
Rotton Park ...	838	20·7	135	3·3	10	·25
St. Bartholomew's ...	400	10·1	40	1·0	6	·15
St. Martin's and Deritend ...	642	15·3	86	2·0	7	·17
St. Mary's ...	302	9·3	19	0·6	6	·19
St. Paul's ...	233	7·9	44	1·5	7	·24
Saltley ...	605	21·5	68	2·4	2	·07
Sandwell ...	116	6·1	135	7·1	1	·05
Selly Oak ...	253	9·6	251	9·5	2	·08
Small Heath ...	425	14·3	159	5·3	3	·10
Soho ...	255	9·2	189	6·8	—	—
Sparkbrook ...	331	9·2	166	4·6	—	—
Sparkhill ...	141	6·0	220	9·3	—	—
Washwood Heath ...	624	17·4	42	1·2	6	·17
Yardley ...	225	13·4	176	10·5	1	·06

\* Only one death occurred from German Measles.

Size of the houses and rental of houses in which cases of measles occurred  
(excluding Institutions and cases not found):—

SIZE OF HOUSE.	MEASLES.		GERMAN MEASLES.		* MEASLES.	
	No. of Cases.	Rate per 1,000 houses.	No. of Cases	Rate per 1,000 houses.	Deaths.	Percentage on Cases.
3 rooms ... ..	2,680	67	346	9	42	1·6
4 rooms ... ..	1,776	71	335	13	20	1·1
5 rooms ... ..	2,535	47	1,322	24	22	0·9
6 rooms ... ..	2,430	51	1,747	36	14	0·6
7 rooms ... ..	346	33	355	45	0	0·3
Over 7 rooms ... ..	536		869		3	
RENTAL OF HOUSE.						
Under 5/- ... ..	2,141	57	308	8	45	2·1
5/- and under 6/- ... ..	2,379	80	512	17	26	1·1
6/- and under 7/- ... ..	2,596	55	1,094	23	18	0·7
7/- and under 8/- ... ..	1,124	32	822	31	3	0·4
8/-, 9/- and 10/- ... ..	1,352		910		5	
Over 10/- ... ..	711		1,328		4	

\* Only one death occurred from German Measles.

From these figures it will be obvious that German measles has been prevalent in the better-class artisan districts rather than in the slums. It was thought at one time that German measles was so trivial an illness as to pass unrecognised by the poorer classes, but this is not the case, as our school records of cases show. It is doubtful, however, whether the diagnosis between Measles and German measles is always accurately made.

The most striking feature in the above table is the fact that while the incidence of the cases is not so very widely different in the different types of houses (especially if the two diseases are taken unitedly), yet the mortality is almost entirely confined to houses of small size and low rental. Only 9 deaths occurred in houses over 7s. per week, and of these only 4 took place in houses at more than 10s. per week.

#### WHAT HAS BEEN DONE.

For many years it has been recognised that the prevention of measles epidemics is, so far as large towns are concerned, a matter of the greatest difficulty. Indeed, it has to some been a matter of great doubt as to the possibility of doing anything. The notification of the disease is a first step in the direction of its control. The most important point to bear in mind is that if a child can be prevented from having measles during the first five years of its life, *i.e.*, during the pre-school period, then the chances of death when the attack does come will be enormously less. In Birmingham this is clearly pointed out by the Health Visitors and in the pamphlets of instructions which are issued. Every case is visited (1) with a view to reporting on it to the school; (2) with a view to giving directions as to what can be done to prevent the spread of the disease; and (3) with a view to preventing complications and getting the patient cured as soon as possible.

When a baby is born in a working-class district the mother is visited and given instructions. She is supplied with a booklet of "Advice to wives and mothers," in which there is an excellent page of advice in regard to measles. When a case of measles is reported the house is again visited, and further information given. If the case is found to be one of severe measles, or one with dangerous complications, medical and nursing assistance is advised. In cases where the services of a nurse cannot be obtained on account of lack of means, one of the nurses employed by the Birmingham Nursing Association is sent at the expense of the Public Health Committee. It is difficult to estimate the exact value of this supply of trained



nurses, but, undoubtedly, it is very great. Many cases are met with which probably would have died but for the nurses' services in going as often as necessary to the house. In this connection it may be stated that at the time of the Health Visitor's call 3,698 of the measles cases, and 1,448 of the German measles cases, were not under a doctor, and 3,873 of the former and 1778 of the latter were not being kept in bed.

The mortality from measles in 1916 was relatively small, compared with many previous years, notwithstanding the apparently large prevalence of the disease. Approximately there was one death in every 105 cases, or a fatality rate of .9 per cent.

Of the notified cases of German measles and measles in 1916 the source of information was as follows :—

Notified by Medical Practitioners	...	...	...	8,168
Reported by School Teachers	...	...	...	3,023
Reported by Parents	...	...	...	3,344
Reported by Health Visitors	...	...	...	1,096

If the notification fee of 2s. 6d. for each case had been in operation, the notification of measles would have cost the Corporation £1,000. As a matter of fact, the notification fee for part of the year 1916 was reduced to 1s. per case.

#### SCARLET FEVER.

There were 1,796 cases of Scarlet Fever reported, and 26 deaths were caused by it. In 1915 there were 2,978 cases; in 1914, 6,764; and 1913, 8,447. The year 1916 may, therefore, by comparison be considered one of very low prevalence.

The cases were dealt with as in former years, 1,232 cases being sent to Little Bromwich Hospital and 97 to West Heath Hospital.

The number of hospital "return" cases was 60, equal to 4.5 % of the admissions.

#### WHOOPIING COUGH.

There were 5,783 cases of this disease reported by school teachers or ascertained by Health Visitors. The deaths numbered 378, as compared with 121 in 1915 and 309 in 1914.

The ages at which these deaths occurred were as follows :—

Under 1 year	...	...	...	...	162
Between 1 and 2 years	...	...	...	...	130
Between 2 and 3 years	...	...	...	...	47
Between 3 and 4 years	...	...	...	...	21
Between 4 and 5 years	...	...	...	...	8
All over 5 years	...	...	...	...	10

The important fact to note is that this disease is enormously more fatal for very young infants than for older children. As in the case of measles, our endeavour has been to ward off the attack from the very young, and where the disease has already developed, to advise the greatest possible precautions in regard to them.

It is found that the disease is difficult to diagnose in its early stages, and that what is a simple cough is often neglected, and thereby the disease is spread. The Department's leaflet was amended and re-issued during the year. A copy is appended.

## WHOOPIING COUGH.

### IMPORTANT ADVICE TO PARENTS.

*Whooping Cough is one of the most deadly of diseases when it attacks young children. About 200 babies under two years of age die of it every year in Birmingham.*

#### HOW TO TELL WHEN A CHILD HAS CAUGHT WHOOPING COUGH.

*1st Stage.*—For the first eight to fourteen days the child who has caught Whooping Cough has a short dry cough, occurring at any time, without any whoop or bout of coughing. Often the cough is very frequent and of gradually increasing severity. After this stage has passed the child may vomit after the severe coughing, and the attacks come at more regular intervals, most marked at night.

*2nd Stage.*—Then follows the stage when paroxysms of coughing come on and the “whoop” is usually present and easily recognised. The infection spreads most during the first stage—long before the “whoop” appears. Therefore, if whooping cough is known to be present, it is most important to suspect the disease whenever a child has the kind of cough described above.

#### WHAT TO DO FOR THE CHILD.

In every case the child should be kept *warm and quiet in bed* from the time you suspect the disease until at least a week after the “whoop” has developed.

In the case of children under three years of age, and in the case of older children when the disease is severe, always call in a doctor.

The windows of the bedroom should be kept wide open night and day if the weather is mild, and partly open if it is cold weather. During cold weather there should be a fire in the bedroom. The child should be sheltered from draughts. Catching cold under these circumstances leads often to serious results. It is most important that the child should be bathed daily.

Drugs, other than aperients, should not be given without a doctor's advice.

Always catch the patient's spit in a piece of paper, and burn this. The spit may spread the disease if allowed to fall on the bedclothes, floor, etc.

It is important to keep up the child's strength by suitable light nourishing food given at proper intervals.

#### HOW TO PROTECT OTHER CHILDREN.

Whooping Cough is very infectious in the first stage, but not nearly so much in the “whooping” stage.

If your child is suspected of having caught the disease, keep him in a warm, well-ventilated room, and stop others, and particularly babies, from coming near him. After the “whoop” has developed, and if otherwise fit, he may be taken out when the weather is fine, but not allowed to play with other children or go in a tramcar. When nearly well a week or two in the country often greatly hastens recovery.

After recovery wash the bed clothing and all personal clothing which has come in contact with the patient, and thoroughly wash the woodwork and furniture and air the rooms where the patient has been.

#### WHAT TO DO WITH SCHOOL CHILDREN.

1. If you suspect Whooping Cough, keep the child from school, and write a note to the Head Teacher. A child suffering from Whooping Cough should be kept from school *until the “whoop” stops*.

2. Other children who live in the same house and *who have not had Whooping Cough* previously, should be kept from school till one month after the development of the “whoop” in the last case.

3. Other children *who have previously had Whooping Cough* may continue at school.

There is a penalty on parents who do not report cases of Whooping Cough to the schools to which their children go. (Birmingham Corporation Act, 1914.)

Public Health and Housing Department, The Council House, Birmingham.

## DIPHTHERIA AND CROUP.

There were 951 notified cases of this disease, with 116 deaths. In 1915 there were 1,072 cases, with 135 deaths; while in 1914 there were 1,623 cases, with 260 deaths.

The fatality rate for 1916 was 12 per cent., as compared with 13 per cent., 16 per cent., and 17 per cent. in the three preceding years. Were it possible to get all the cases under efficient treatment early, much better results could be obtained.



## DIARRHŒA AND ENTERITIS.

The number of deaths from this group of diseases was 489. This is equal to a mortality rate of ·55 per 1,000, as compared with ·77 per 1,000 in 1915, ·87 in 1914, and 1·11 in 1913.

This mortality rate for Birmingham was the second lowest in the area of Greater Birmingham since 1901, as will be seen from the following table:—

	Deaths from Diarrhoea and Enteritis.	Death-rate per 1,000	Maximum Air Temperature*	Days with 75° or over.*	Maximum Soil Temperature (4ft. deep).*	Amount of Rain.*
1901 ...	... 1,320	1·74	88·0	17	56·0	5·91
1902 ...	... 634	·82	81·4	4	53·9	7·51
1903 ...	... 921	1·19	83·8	4	53·8	9·85
1904 ...	... 1,422	1·82	81·8	16	55·8	5·75
1905 ...	... 839	1·06	80·3	7	55·4	7·33
1906 ...	... 1,439	1·80	90·6	15	56·2	2·97
1907 ...	... 511	·63	76·8	1	53·2	6·08
1908 ...	... 873	1·06	82·0	7	54·2	6·94
1909 ...	... 535	·65	84·4	9	54·3	7·63
1910 ...	... 541	·65	73·9	0	53·2	8·24
1911 ...	... 1,390	1·65	93·9	40	57·2	3·27
1912 ...	... 346	·41	82·2	4	53·9	10·99
1913 ...	... 970	1·11	79·4	6	54·0	4·51
1914 ...	... 767	·87	82·6	8	55·3	7·00
1915 ...	... 684	·77	74·6	0	54·3	8·34
1916 ...	... 489	·55	82·1	14	54·8	5·42

\*In the third quarter of the year.

## TUBERCULOSIS.

The difficulty which always exists of making accurate statements regarding the prevalence of Tuberculosis, and of the effects of action taken in regard to its prevention, on account of the impossibility of ever knowing the total amount of Tuberculosis in the human subject has been greatly increased during the year 1916 by the changes in the age and sex constitution of the population by the war.

It has been pointed out in previous reports (1) that a very large proportion of the people of this city have been infected at one time or another with Tuberculosis; (2) that this infection has a liability in the majority of cases to gain some hold, but not enough to be recognised by the infected person, or by ordinary clinical methods; (3) that such infection most frequently lies in what may be called a dormant state for long periods; and (4) that the infection may be activated by intercurrent disease, or any other debilitating condition, to such a degree that the disease is recognised as Tuberculosis of the lungs or other organs.

It follows from the above facts that the number of notified cases of the disease will largely depend on the vigilance of the members of the medical profession in finding the disease in its earliest recognisable stages, and, therefore, it is scarcely possible to compare the incidence of the disease in different towns unless equal care be taken in both.

If one takes the number of cases of the disease notified to each death from the disease as an indication of the efficiency of the medical examinations made, then Birmingham stands high among the great towns as one having a medical organisation capable of diagnosing the disease early, and thereby permitting of treatment being commenced early.

## SIX LARGEST PROVINCIAL TOWNS.

	Total Cases of Pulmonary Tuberculosis notified in 1915.	Total Deaths Pulmonary Tuberculosis in 1915.	Cases Notified per 100 deaths.	Death-rate per 1,000.	
				Pulmonary.	Other Forms.
Birmingham ... ..	3,027	1,141	265	1·28	·27
Liverpool ... ..	2,169	1,377	157	1·86	·54
Manchester ... ..	2,438	1,342	182	1·92	·42
Sheffield ... ..	1,198	651	184	1·37	·41
Leeds... ..	1,098	655	168	1·47	·51
Bristol ... ..	801	456	175	1·29	·30

During 1916 two additional disturbing factors appear :—

1. The removal of a large number of the available doctors, mostly the younger, leaving the clinical work of the town to be done by fewer practitioners, and, therefore, on the whole, more hurriedly and less efficiently.
2. The removal of a large number of young healthy males, the doubtful and diseased being rejected and left at home. It is obvious that a comparison of rates with former years may be somewhat invalidated by this removal.

These disturbing elements were more obvious in 1916 than in 1915, for medical examination of recruits was extended to all males between 18 and 41, with certain exceptions, viz., skilled munition workers, etc. This brought to light a large number of cases of disease which would otherwise not have been recognised, cases, however, which would have been greatly harmed had they been subjected to the rigour of military training, etc.

## NOTIFIED CASES OF PULMONARY TUBERCULOSIS.

1912	1913	1914	1915	1916
4,394 ...	4,229 ...	3,317 ...	3,027 ...	3,388

## DEATHS AND DEATH-RATES FROM PULMONARY TUBERCULOSIS.

	Deaths.	Death-rate, Birmingham.	Death-rate, England and Wales.
1876—1880 (Old City)	—	2·05	2·04
1881—1885	—	1·84	1·83
1886—1890	—	1·69	1·64
1891—1895	—	1·52	1·46
1896—1900	—	1·48	1·32
1901—1905	—	1·56	1·22
1906—1910	—	1·33	1·11
1912 (Enlarged City)	1,088	1·28	1·04
1913	1,041	1·19	1·01
1914	1,059	1·20	1·04
1915	1,141	1·28	1·16
1916	1,107	1·24	—

## NOTIFIED CASES IN AGE AND SEX GROUPS OF PULMONARY TUBERCULOSIS, 1912-1916.

AGES.		MALES					FEMALES.				
		1912.	1913.	1914.	1915.	1916.	1912.	1913.	1914.	1915.	1916.
Under 10	...	139	235	194	188	267	99	177	162	189	251
10—15	...	151	165	149	138	185	144	155	141	152	215
15—20	...	169	169	135	90	112	172	157	127	108	125
20—25	...	234	199	181	129	161	316	315	218	192	170
25—35	...	555	493	392	326	388	683	583	444	383	334
35—45	...	471	441	338	352	370	456	402	272	267	301
45—55	...	315	288	228	207	213	215	165	139	126	131
55 up	...	181	195	126	115	100	94	90	71	65	65
		2,215	2,185	1,743	1,545	1,796	2,179	2,044	1,574	1,482	1,592

This table shows clearly, both for males and females, a marked reduction in the number of cases first brought to light at ages over 15 years, while on the contrary it shows that the total number of cases of Pulmonary Tuberculosis is maintained by a great increase of Tuberculosis in young people under 15 years of age, *i.e.*, at a time when arrest is more likely to occur. There were more than double the number of boys and girls under 10 years of age reported in 1916 as were reported in 1912. There were rather more than half as many men and women at ages 25—35 reported for the first time in 1916 as in 1912.

These figures go a long way to confirm the opinion originally expressed that the advent of compulsory notification and of anti-tuberculosis work would probably prevent any reduction in Tuberculosis mortality becoming apparent by reason of the fact that many deaths formerly certified as from Chronic Bronchitis, etc., were now certified as from Tuberculosis. It has been, however, previously stated that this condition will pass away, and the above figures indicate that it is already passing.

The deaths during 1916 from Pulmonary Tuberculosis represent 33 per cent. of the notified cases. For the past five years it may be said that of every 100 cases of Pulmonary Tuberculosis reported from 65 per cent. to 70 per cent. recover, and from 30 per cent. to 35 per cent. die.

## MALE AND FEMALE INCIDENCE AND MORTALITY FROM PULMONARY TUBERCULOSIS.

		MALES.				FEMALES.			
		Cases.	Rate per 1,000	Deaths.	Rate per 1,000	Cases.	Rate per 1,000	Deaths.	Rate per 1,000
0—15	...	452	3·24	34	·24	466	3·33	35	·25
15—25	...	273	3·67	76	1·02	295	3·33	92	1·04
25—35	...	388	5·30	127	1·75	334	4·01	107	1·28
35—45	...	370	6·22	195	3·28	301	4·74	102	1·61
45—55	...	213	5·38	160	4·04	131	3·05	45	1·05
55—65	...	79	3·30	78	3·26	54	1·99	24	0·89
Over 65	...	21	1·36	22	1·42	11	0·51	10	0·46
All ages...		1,796	4·22	692	1·63	1,592	3·41	415	0·89

It will probably be found that of the early cases notified the vast majority will go on to arrest without any special treatment, while of the others, owing to the fact that they are recognised early, and at an age when treatment is more effective, a larger proportion also will show complete arrest. These figures give great hope that the large expenditure on anti-tuberculosis work is beginning to have its results.

Another very satisfactory feature is the annual reduction in mortality from non-Pulmonary Tuberculosis. If the majority of these cases catch the infection from active cases of Pulmonary Tuberculosis, then if one reduces the number of active cases of Pulmonary Tuberculosis, one would expect to correspondingly reduce the number of non-Pulmonary cases.

#### NON-PULMONARY TUBERCULOSIS.

		No. of Deaths.		Death-rate in Birmingham.		Death-rate in England and Wales.
1901	...	395	...	·52	...	·54
1902	...	285	...	·37	...	·51
1903	...	370	...	·48	...	·54
1904	...	351	...	·45	...	·54
1905	...	322	...	·41	...	·49
1906	...	295	...	·37	...	·50
1907	...	343	...	·43	...	·47
1908	...	287	...	·35	...	·47
1909	...	248	...	·30	...	·45
1910	...	270	...	·32	...	·42
1911	...	272	...	·32	...	·38
1912	...	204	...	·24	...	·33
1913	...	300	...	·34	...	·34
1914	...	234	...	·27	...	·32
1915	...	236	...	·27	...	·35
1916	...	217	...	·24	...	—

#### VARIETIES OF NON-PULMONARY TUBERCULOSIS.

				Cases notified.	Deaths not notified as cases.	Total Deaths.
Tubercular Meningitis	...	...	...	59	45	95
Abdominal Tuberculosis	...	...	...	99	22	58
Tuberculosis of Spine...	...	...	...	10	8	13
Tuberculosis of Joints	...	...	...	29	1	4
Tuberculosis of other organs, mostly glands				229	7	11
Disseminated Tuberculosis	...	...	...	16	9	36

In the above figures, and those contained in the table showing the age and sex incidence of each variety of Tuberculosis, it may be pointed out that there is a diminution in the number of notified cases of non-Pulmonary Tuberculosis in each group, with one exception, viz., Tuberculosis of the Meninges. This result is apparently not confined to Birmingham alone, for the Registrar-General has noted its occurrence in the figures for England and Wales in 1915.

## Notified Cases of Tuberculosis, 1916.

	PULMONARY.			MENINGITIS.			ABDOMINAL.			SPINE.			JOINTS.			OTHER ORGANS.			DISSEMINATED.			TOTAL.		
	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total	Males	F'males	Total
Under 1 year	3	7	10	3	8	11	18	15	33	—	—	—	—	—	—	—	—	—	2	—	2	26	30	56
1 and under 2	8	9	17	8	3	11	8	12	20	—	—	—	1	1	2	1	1	2	—	2	2	25	28	53
2 "	6	5	11	5	6	11	5	3	8	—	—	—	1	—	1	4	1	5	—	—	—	21	15	36
3 "	3	8	11	4	4	8	1	1	2	—	—	—	—	—	—	6	2	8	2	—	2	16	15	31
4 "	10	9	19	2	3	5	1	—	1	—	—	—	—	—	—	4	3	7	1	—	1	18	15	33
5 "	237	213	450	3	3	6	5	10	15	—	—	—	5	5	10	45	41	86	—	3	3	295	275	570
10 "	185	215	400	1	3	4	2	3	5	1	1	2	4	2	6	23	41	64	2	—	2	218	265	483
15 "	112	125	237	—	—	—	—	2	2	—	—	—	3	1	4	8	6	14	—	3	3	123	137	260
20 "	161	170	331	—	1	1	—	2	2	1	1	2	—	1	1	2	7	9	—	—	—	164	182	346
25 "	388	334	722	2	—	2	3	3	6	3	1	4	—	1	1	5	7	12	—	1	1	401	347	748
35 "	370	301	671	—	—	—	2	—	2	1	1	2	1	2	3	7	4	11	—	—	—	381	308	689
45 "	213	131	344	—	—	—	—	2	2	—	—	—	—	1	1	2	4	6	—	—	—	215	138	353
55 "	79	54	133	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	80	54	134
Over 65	21	11	32	—	—	—	—	—	—	—	—	—	1	—	1	4	1	5	—	—	—	26	12	38
All Ages	1796	1592	3388	28	31	59	46	53	99	6	4	10	15	14	29	111	118	229	7	9	16	2009	1821	3830

Reports are herewith submitted by :—

- (1) Dr. Dixon on the treatment of Tuberculosis.
- (2) Dr. Dixon on the work of Yardley Road Sanatorium.
- (3) Dr. Glover on the work of Salterley Grange Sanatorium.
- (4) Dr. Aldridge on the work of West Heath Hospital.
- (5) Dr. Campbell on the work of Witton Hospital.
- (6) Dr. Peter Allan on the work of Romsley Hill Sanatorium.

#### REPORT ON THE TREATMENT OF TUBERCULOSIS.

(By DR. G. B. DIXON, CHIEF TUBERCULOSIS OFFICER.)

A large proportion of the treatment of Pulmonary Tuberculosis in Birmingham is undertaken in institutions under the control of the Public Health Department, by the General Hospitals, and by institutions working in conjunction with, and in some instances subsidised by, the Municipal Authority; included amongst the latter are the Romsley Hill Sanatorium, with 140 beds, 120 of which are reserved for patients sent in by the Public Health Department; and the Special Department of the General Dispensary in Great Charles Street.

The doctors on the panel of the Local Insurance Committee and private practitioners, also treat a number of tuberculous persons.

The institutions engaged in the treatment of Pulmonary Tuberculosis are :—

*The Anti-Tuberculosis Centre, 44a Broad Street (Municipal)*, the medical staff of which is: Dr. G. B. Dixon, Chief Tuberculosis Officer; Dr. J. R. McGregor, Dr. S. H. Stewart and Dr. E. Glover, Tuberculosis Officers. With the exception of Dr. Glover, who is also Medical Superintendent of Salterley Grange, these doctors constitute the staff of the Yardley Road Sanatorium. In addition there is a part-time staff of two doctors, who assist in the evening work of treatment. Dentist, Mr. C. W. Randall; Sister-in-Charge, Miss E. M. Woodall.

*The Yardley Road Sanatorium, 288 beds (Municipal), situated within the City boundary.* Medical Superintendent, Dr. G. B. Dixon; Resident Medical Officers, Dr. J. R. McGregor and Dr. S. H. Stewart; Matron, Miss Moore.

*The Salterley Grange Sanatorium, near Cheltenham (Municipal), 97 beds.* Medical Superintendent, Dr. E. Glover; Matron, Miss Mason.

*The West Heath Hospital (Municipal)* has 58 beds for the treatment of acute cases of Pulmonary Tuberculosis. Temporary Visiting Medical Superintendent, Dr. Aldridge; Matron, Miss Bywater.

*Witton Hospital (Municipal)* has accommodation for 70 female patients who are suffering from Pulmonary Tuberculosis. Temporary Visiting Medical Superintendent, Dr. P. Campbell; Matron, Miss Thornton.

*The Romsley Hill Sanatorium (Birmingham Hospital Saturday Fund)*, 140 beds, of which 120 are rented by the Public Health Committee, which are filled, when possible, by patients subscribing to the Hospital Saturday Fund. Medical Superintendent, Dr. P. Allan; Matron, Miss Murray.

*The Special Department of the General Dispensary, Great Charles Street*, is an out-patient department for the treatment of Tuberculosis; it is a unit for the treatment of tuberculosis in the Municipal Scheme, and receives a subsidy from the City Council. Temporary Medical Superintendent, Dr. Sinha; Assistant, Dr. Moorhead.

Witton Hospital, with 70 beds, is reserved entirely for Poor-Law female Tuberculosis patients.

The patients admitted by the Guardians to the men's pavilions at Yardley Road Sanatorium and to the Witton Hospital are necessarily sent in without any medical selection being made; as a result, they often include those whose capability for employment is past; in fact, a certain number are admitted in a dying condition. I refer to this because the mortality rate of the Poor-Law cases is very much higher than that of the other patients.



## THE ANTI-TUBERCULOSIS CENTRE.

All cases of Pulmonary Tuberculosis (notified to the Medical Officer of Health) who desire treatment are examined at the Anti-Tuberculosis Centre, Broad Street, and a suitable form of treatment is decided upon, at the same time useful advice and instruction are given on the subjects of dietary, ventilation, sputum collection, disinfection, and occupation, etc.

In some instances it is possible to commence treatment at the Centre at once, preliminary Sanatorium treatment not being necessary, and in most of these cases the patient is able to continue employment whilst receiving treatment. A patient who is being treated in this way is frequently provided with a Shelter in which he can sleep, if his garden or other accommodation permits. Those requiring Sanatorium treatment are sent for varying periods to one of the Sanatoria mentioned above.

In a large city the advisability of giving a period of residential treatment in a Sanatorium to as many patients as possible cannot be doubted. Early cases of tuberculosis, which are frequently acute, are greatly benefited by it if ultimate arrest of the disease is aimed at. More advanced cases, often infective, in which complete arrest is unexpected, should be given a short period of residential treatment also, in order to gain practical experience of the means necessary to prevent infection. The improvement which occurs in many of the latter cases is frequently surprising, and encourages an extension of treatment that undoubtedly prolongs the period during which the patient is capable of earning a living, and maintaining himself without being a burden to his relatives.

It has been suggested recently in the Medical Press that it is not economical to treat any but early cases in Sanatoria, and early cases are generally described as those in which the distribution of the disease is slight, as determined by the physical signs. It is notoriously difficult, and almost impossible, to foretell the course which a case of Pulmonary Tuberculosis will run from a survey of the physical signs alone. Recovery, or the possibility of procuring arrest of the disease, depends upon more complex factors than the amount of diseased lung tissue present.

The patient's powers of resistance and the possibility of effectively stimulating them, the virulence of the organism giving rise to the disease, and the association with it of other organisms producing a "mixed infection," have all a most important bearing upon the patient's prospects of recovery. In fact, chronicity of the disease extending over some time and definite physical signs are themselves irrefutable evidence of resistance which early, and perhaps more recently, infected cases cannot always produce. It seems unreasonable therefore to refuse Sanatorium treatment to any patient because the disease affects at most the whole of one lobe of a lung, without considering other points in connection with the case, and to allow the anatomical distribution of the disease to outweigh definite evidences of resistance, in determining whether a patient shall receive residential treatment for his disease or not, seems to be suggestive of the adoption of a rule of thumb method. A patient who is classified as a Group III. or an anatomically advanced case may out-live, and be capable of doing more work, than one in Group I. or an anatomically early case.

I think it will be found that no single measure adopted up to the present contains such prospects for the eventual reduction of tuberculosis as an adequate provision of residential institutions for treatment, which should be most generous in its accommodation for advanced cases in suitable hospitals. By this means the advantage of temporary segregation is obtained, whereby the focus of infection is removed, and there is also added the benefit which must result from the practical education of the patients.

Much remains to be done in the direction of "after care" of those who have been treated.

The time spent in the Sanatorium is for varying periods, and has to be largely determined by circumstances and conditions surrounding each patient.

As far as possible the beds at Salterley Grange are reserved for those whose disease is such that arrest may be looked for. The use of beds for male Poor-Law consumptives at Yardley Road Sanatorium has necessitated the admission of males to Salterley Grange with more extensive disease than in former years.

Patients with acute extensive disease requiring prolonged and complete rest are received into the West Heath Hospital. Others whose disease is in an intermediate condition are treated in the pavilions for females and children at Yardley Road, and at Romsley Hill Sanatoria.

Poor-Law male patients are treated at Yardley Road and the females at Witton Hospital.

Whilst in the Sanatoria patients experience the advantage of living in the open air, they have the benefit of a generous supply of good food, their sputum is carefully collected and destroyed, and the period of time to be spent in rest and exercise is supervised daily. In addition, they receive useful instruction on all these points, which teaches them how to convert their own homes into modified Sanatoria, where they may live without infecting their relatives, and with a prospect of having their disease arrested when it is not too advanced.

On their return from the Sanatoria they are again seen at the Centre, where many continue to attend as out-patients; some, however, return to their private doctors, others receive domiciliary treatment from their panel doctors. The patients attending the Centre are examined from time to time, and those who have been patients in the past are re-examined after varying intervals of time. Unavoidable shortage of doctors, however, has unfortunately resulted in the curtailment to a certain extent of this part of our work.

The Anti-Tuberculosis Centre is open daily, including the evenings, on five days a week, and on Saturdays for half the day. New patients are examined and old patients are re-examined by appointment, during the mornings and afternoons.

Treatment is given during the evenings to those who are working, and in the afternoons to children and those women and men who are not working.

Most of the women and children who live in the Small Heath district prefer to attend at the Sanatorium for their out-patient treatment, which is given on Tuesday and Friday mornings.

Those who have been in contact with persons suffering from Tuberculosis are examined at appointed times convenient for them.

#### NUMBER OF PATIENTS EXAMINED DURING THE YEAR.

During the calendar year, which differs slightly from the registration year, the total number of attendances for diagnosis and treatment at the Centre was 45,119, which is an increase of 3,575 over the preceding year.

The total number of attendances for treatment alone was 38,251.

We examined 2,043 new (notified) cases during the year, 701 "contact" (or un-notified) cases, and there were 2,645 re-examinations of other patients.

The new cases examined, *i.e.*, the notified and contacts, the total of which was 2,744, received no less than 4,233 examinations before the required form of treatment was decided upon.

It was necessary to examine 182 notified patients in their own homes, as they were too ill to attend at the Centre.

The following table shows the form of treatment primarily recommended for the new cases examined during the year:—

			Notified Patients.	Contacts.
Number recommended for Sanatoria and Hospital	...	...	1,574	326
Number recommended for Dispensary	...	...	125	54
Number recommended for Domiciliary treatment	...	...	151	20
Treatment not required	...	...	193	301
Total	...	...	2,043	701

It may be well to state here that the "Sanatorium Benefit" of the National Health Insurance Act includes Sanatorium, Hospital, Dispensary and Domiciliary treatment.

From the above table it will be seen that 1,900 patients were primarily recommended for residential treatment in the Sanatoria and Hospital; 203 of them refused the treatment advised.

The number of "contact" cases examined cannot be considered as satisfactory when compared with the number of notified cases examined; the smallness of the number is due entirely to the curtailment of the Medical Staff.

It is interesting to note that of the 701 contact or suspected cases examined 400, or 57%, were found to be suffering from Tuberculosis and required treatment.

During the latter part of the year the President of the Local Government Board issued a letter to the Recruiting Authorities advising them to make use of the Tuberculosis Officers, when expert advice was required in the diagnosis of Tuberculosis amongst recruits. As a result of this, we have been asked to examine 353 men since July, 1916. In about 50% of this number more than one examination was necessary in order to arrive at a correct decision.

This arrangement also caused an increase in the laboratory work at the Centre, as sputum had to be examined in every case when present, and in many instances more than one examination was required. In some instances other clinical specimens required examination.

#### PATIENTS TREATED DURING THE YEAR.

During the year 1916 the names of 2,225 were on the register at the Centre, as having received out-patient treatment. Of these 1,002 were transferred from the register of the previous year, not having completed treatment.



During 1916 patients to the number of 1,019 were transferred from the Sanatoria to the Centre for out-patient treatment, and 181 persons after examination were given dispensary treatment as their initial form of treatment. Some 23 patients were on the register during the year for the purpose of observation, etc.

The period of treatment is in most cases a prolonged one, and is seldom less than 10 months, and frequently much longer. It is obvious therefore that many who are included in the total above commenced treatment in the preceding year; furthermore, a large number of those who came under our care in 1916 did not complete their treatment in the period covered by the report and are continuing it in the current year.

Of the 2,225 patients 651 were males, 818 were females, and 756 were children of 14 years and under.

Of the male patients treated, 578 were insured persons, and there were 419 insured persons amongst the females.

The total number of patients receiving treatment at the Centre during 1916 shows a decrease of 60 as compared with those treated during 1915.

During the year 80 of the male patients were transferred to domiciliary treatment, and 37 either could not be traced or were receiving treatment elsewhere.

Female patients numbering 124 were transferred to domiciliary treatment during the year, and a total of 103 left to receive treatment from other sources, and some have probably left the city.

Of the children 67 were receiving treatment at home and 125 discontinued treatment, in most cases because of the inability of their relatives or friends to bring them to the Centre; 23 attended for the purpose of observation only, and were not included for the purpose of tabulation.

After deducting the number of patients transferred to domiciliary treatment, those who are receiving treatment elsewhere, and those who cannot be traced, the total number of patients on the register at the end of the year was reduced from 2,225 to 1,666, and in the following tables these 1,666 patients are dealt with. This number comprises 534 males, 591 females, and 541 children.

#### CLASSIFICATION OF ALL OUT-PATIENTS WHO RECEIVED TREATMENT AT THE CENTRE.

##### CLASSIFICATION ACCORDING TO STAGE OF DISEASE.

	Stadium I.	Stadium II.	Stadium III.
Males ... ..	163	265	106
Females ... ..	220	263	108
Children ... ..	315	159	67

During the year 3,908 specimens were examined in the laboratory at the Centre, and in the following tables the condition of the sputum is shown at the commencement of treatment:—

#### RESULT OF SPUTUM EXAMINATION—MALES.

	Stadium I.	Stadium II.	Stadium III.
Tubercle bacilli present ... ..	49	99	65
Tubercle bacilli not found ... ..	78	132	28
No sputum ... ..	36	34	13

#### RESULT OF SPUTUM EXAMINATION—FEMALES.

	Stadium I.	Stadium II.	Stadium III.
Tubercle bacilli present ... ..	44	71	39
Tubercle bacilli absent ... ..	86	96	48
No sputum ... ..	90	96	21

#### RESULT OF SPUTUM EXAMINATION—CHILDREN.

	Stadium I.	Stadium II.	Stadium III.
Tubercle bacilli present ... ..	4	3	1
Tubercle bacilli not found ... ..	57	19	13
No sputum ... ..	254	137	53

The following tables show the working capacity before and during treatment of patients who could be classified, and who received treatment at the Centre during the year. It should be noted that in a large percentage of the cases the out-patient treatment was subsequent to Sanatorium treatment:—

## WORKING CAPACITY—MEN.

Stage I.					Before Treatment.		During Treatment.	
Unimpaired	...	...	...	...	48	29.46%	149	91.41%
Impaired	...	...	...	...	109	66.87%	12	7.36%
Totally incapacitated	...	...	...	...	6	3.68%	2	1.22%
Stage II.					Before Treatment.		During Treatment.	
Unimpaired	...	...	...	...	24	9.056%	218	82.26%
Impaired	...	...	...	...	225	84.905%	41	15.47%
Totally incapacitated	...	...	...	...	16	6.03%	6	2.26%
Stage III.					Before Treatment.		During Treatment.	
Unimpaired	...	...	...	...	8	7.54%	73	68.86%
Impaired	...	...	...	...	80	75.47%	28	26.41%
Totally incapacitated	...	...	...	...	18	16.98%	5	4.72%

## WORKING CAPACITY—WOMEN.

Stage I.					Before Treatment.		During Treatment.	
Unimpaired	...	...	...	...	49	22.17%	193	87.33%
Impaired	...	...	...	...	164	74.66%	25	11.76%
Totally incapacitated	...	...	...	...	7	3.16%	2	.905%
Stage II.					Before Treatment.		During Treatment.	
Unimpaired	...	...	...	...	20	7.604%	204	77.56%
Impaired	...	...	...	...	227	86.31%	54	20.53%
Totally incapacitated	...	...	...	...	16	6.08%	5	1.901%
Stage III.					Before Treatment.		During Treatment.	
Unimpaired	...	...	...	...	4	3.703%	49	45.37%
Impaired	...	...	...	...	68	62.95%	50	46.29%
Totally incapacitated	...	...	...	...	36	33.33%	9	8.33%

## WORKING CAPACITY—CHILDREN.

					Before Treatment.		During Treatment.	
Unimpaired	...	...	...	...	110	20.33%	369	68.207%
Impaired	...	...	...	...	388	71.71%	155	28.65%
Totally incapacitated	...	...	...	...	43	7.94%	17	3.14%

## WEIGHT, WORKING CAPACITY, SPUTUM AND CONDITION OF DISEASE IN COMPLETED CASES.

Of the 1,666 out-patients who were classified in the preceding tables some 657 completed a course of treatment during the year, and the remaining 1,009 are continuing to receive treatment at the Centre during the year 1917.

In many of these finished cases the treatment has not been completed in accordance with the recommendation of the Tuberculosis Officers. Too often the period of treatment has been greatly curtailed, or the attendances have been too irregular in character to permit of a specified course of treatment being carried out.

The cause of this in many cases is due to the present-day industrial conditions, when patients may be working alternately day and night. In some instances however the patients' indifference seems to be the only explanation.

In many of the cases the smallness of the doses of tuberculin given, when compared with the length of time during which the patient underwent treatment, is accounted for by the irregularity of attendance.

In many instances too, patients notify us that they will not be attending after a certain date, and, notwithstanding the fact that treatment may be far from complete, a final examination has to be made, and the patient returned as a "completed" case. Others unfortunately will not come for a final examination, which makes it very difficult to classify the case, and it has to be returned as being "lost sight of," etc.

No summary of sputum, weight, working capacity, or the condition of the disease relating to children of 14 years and under has been given, as young children do not as a rule expectorate, and also a growing child will frequently gain weight with active and extensive disease, so that weight in these cases is of less importance than in the case of adults.

177 of those in Stadium I. showed an increase in weight after treatment, 33 showed a loss of weight, and in 11 cases the weight remained stationary.

The working capacity of 184 was improved after treatment, in only 5 cases was it worse than before treatment, and in 59 instances it remained stationary.

Of those in Stadium II. 181 showed an increase of weight after treatment, 54 had lost weight, and in 13 cases the weight remained stationary.

The working capacity of 185 showed an improvement, in 10 cases it had diminished, and in 53 it remained stationary.

Of those in Stadium III. who completed a course of treatment 53 showed an improvement in working capacity, in 25 the working capacity remained the same, and in 8 cases it was worse than before treatment.

No less than 64 in Stadium III. showed an increase in weight, 18 showed a loss of weight after treatment, and in 4 cases the weight remained stationary.

The results of the changes in the sputum and condition of the disease after treatment are summarized in the following table:—

#### SPUTUM OF COMPLETED CASES.

	Total No. of Cases.	No. with Tubercle Bacilli before Treatment.	No. losing Tubercle Bacilli after Treatment.	Bacillary Loss%.
Stadium I. ... ..	221	74	63	85.13%
Stadium II. ... ..	248	123	96	69.91%
Stadium III. ... ..	86	54	27	50%
Totals ... ..	555	251	176	70.11%

#### SPUTUM EXAMINATIONS.

In most of our final sputum examinations where ordinary staining methods have failed to reveal the presence of Tubercle bacilli, one or more additional examinations have been made after incubating and sedimenting the sputum. In this way, as the effect of a searching investigation, more accurate results were obtained than if ordinary methods alone had been utilised.

The percentages of bacillary loss may be regarded as very satisfactory. They do not represent the loss immediately after the completion of a period of Sanatorium treatment when the patient's physical condition is at its best, but are the results obtained after a course of treatment in the out-patient department when the patient has been living at home and following his occupation, in many instances for periods varying from six to eighteen months.

#### SUMMARY OF SPUTUM EXAMINATIONS.

These percentages compare favourably with those obtained in other institutions.

At King Edward VII. Sanatorium, Midhurst, in 1909, the bacillary loss for all stages (I., II., III.) was 16.7%; in 1910 it was 14.5%; in 1911 it was again 14.5%. In 1912 and 1913, after the use of Tuberculin it reached 21.5% and 22.3% respectively.

Lowenstein, in the Berlin Insurance Sanatorium, after treatment with Tuberculin obtained a bacillary loss of 52.9% in 682 patients.

Our bacillary loss for all stages in 251 patients is 70.11%.

A further comparison of the results obtained after treatment, as shown by the bacillary losses in the different stages of the disease, is given in the following table:—

	Stadium I.	Stadium II.	Stadium III.
King Edward VII. Sanatorium, Midhurst, 1912-13 ...	52.9%	23.7%	6.9%
Baden Insurance Institution ... ..	80%	47.7%	33.75%
Birmingham Municipal Anti-Tuberculosis Centre ...	85.1%	69.9%	50%

#### CONDITION OF THE DISEASE—COMPLETED CASES.

	Total No. Cases.	BEFORE TREATMENT. Disease Active.	Disease Quiescent.	AFTER TREATMENT. Disease Active.	Disease Quiescent.
Stadium I. ... ..	221	221	0	66, or 29.86%	155, or 70.13%
Stadium II. ... ..	248	248	0	138, or 55.64%	108, or 43.53%
Stadium III. ... ..	86	86	0	64, or 74.41%	18, or 20.93%

In Stage II., two patients are dead. In Stage III., four patients are dead.

The classification used in the report is that of Turban-Gerhardt, which states that:—

*Stadium I.* comprises those with disease of slight severity, limited to small areas on either side, which in the case of infection of both apices does not extend below the spine of the scapula or the clavicle, or in the case of affection of the apex of one lung does not extend below the second rib in front.

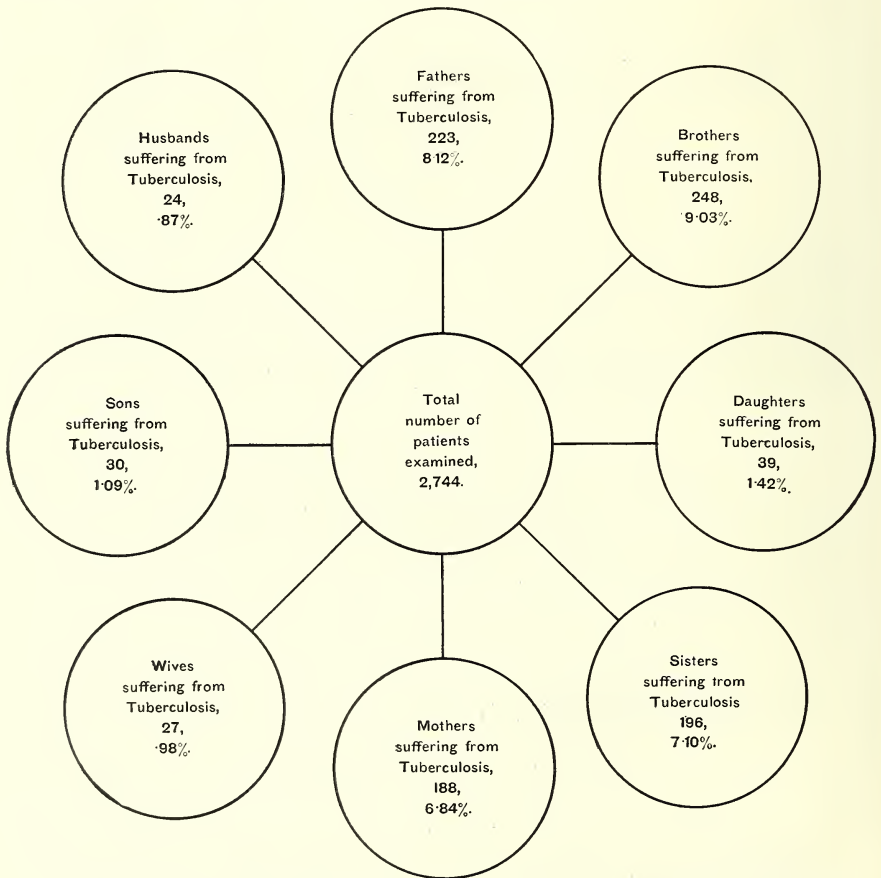
*Stadium II.* comprises those with disease of slight severity more extensive than Stage I., but affecting at most the whole of one lobe, or severe disease extending at most to the half of one lobe.

*Stadium III.*—All cases of greater severity than Group II., and all those with considerable cavities.

*Stadium IV.* includes those cases where no disease can be found, or where the lesion is definitely proved to be obsolete.

#### POSSIBLE SOURCE OF INFECTION.

The following diagram is compiled from the clinical records of 2,744 new cases examined during the year at the Centre, and shows the number and percentage of husbands, wives, and near relatives who were definitely known to be suffering from, or who had died as a result of Pulmonary Tuberculosis.



Where a patient was examined and found to have more than one relative affected with Pulmonary Tuberculosis, each relative has been tabulated in the diagram.

## DENTAL TREATMENT.

During the past year the Public Health and Local Insurance Committees jointly arranged for a dentist to attend once a week at the Centre, in order that patients who required it might receive dental treatment before entering the Sanatoria. The treatment so far has consisted mainly of extractions, with some fillings and scalings.

The importance of this attention to the patients' teeth cannot be over-estimated, and must in time have a definite and beneficial effect upon the results of Sanatorium treatment.

It is obvious that a patient with much dental caries cannot masticate food properly, and may be liable to digestive trouble. If the caries is associated with sepsis, as is frequently the case, it is probable that the patient is constantly absorbing poisons which may directly affect the diseased lung, and will certainly to some extent nullify treatment.

Mr. Randall, the dentist, has provided me with the following short account of the work done in his department during the past nine months:—

Dental treatment to patients attending the Anti-Tuberculosis Centre in Broad Street was commenced in April, 1916, and treatment was undertaken throughout the year on Monday afternoons.

The average attendance an afternoon has been about 15, and 307 patients received treatment.

The dental condition of the majority of patients attending has been very bad indeed, and treatment in consequence has chiefly consisted in the removal of septic teeth.

The choice of anæsthetic has been one of some difficulty, owing to the diseased condition of the lungs, and as the result of experience, nitrous oxide gas is usually administered to patients in Stages I and II, and novocain as a local anæsthetic to patients in Stage III.

Altogether 1,413 teeth have been removed, nitrous oxide gas having been administered 276 times and local anæsthetics 104 times.

Patients as far as possible have been instructed in the proper cleansing of their mouths, and scalings were undertaken for 35 patients.

For those who have taken some care of their mouths 62 fillings have been done, and 10 root fillings.

Seven patients have been provided with artificial dentures.

Below are given some tables showing the condition of the teeth of adult patients attending the Centre during the year, whose dental condition has been classified.

## CONDITION OF TEETH—MALES.

			Good.	Dentures.	Carious.	Pyorrhœa.	Deficient.
Stadium I.	...	...	64	15	51	15	2
Stadium II.	...	...	94	26	116	7	7
Stadium III.	...	...	47	10	40	1	1

## CONDITION OF TEETH—FEMALES.

			Good.	Dentures.	Carious.	Pyorrhœa.	Deficient.
Stadium I.	...	...	70	45	77	2	1
Stadium II.	...	...	77	51	95	8	12
Stadium III.	...	...	34	17	45	1	1

Patients in whom the dental caries was slight and did not affect more than three teeth have been classified as "Good," those with any artificial teeth come under the heading of "Dentures."

Those where purulent conditions were found in connection with the margins of the gums come under the heading of "Pyorrhœa." "Deficient" signifies that the teeth were insufficient for proper mastication.

During the past two years, *i.e.*, 1915 and 1916, 105 discharged soldiers and sailors were given Sanatorium treatment in Birmingham by arrangement with the National Health Insurance Commissioners.

Of this number 13 are now dead. Twenty-five may be regarded as "hopeless" cases when considering the possibility of their obtaining arrest of the disease, or ability to do continuous work for a prolonged period.

After deducting the 13 who died, 52 had Tubercle bacilli in the sputum, in 31 cases no Tubercle bacilli could be demonstrated, and in 9 cases there was no sputum.

Of the total, 7 had received treatment prior to the application made on their behalf when they were discharged from the Services.



## REPORT ON YARDLEY ROAD SANATORIUM.

(By DR. G. B. DIXON, MEDICAL SUPERINTENDENT.)

## SANATORIUM TREATMENT.

In the Municipal and the Romsley Hill Sanatoria the treatment given to patients is on similar lines; it comprises hygienic and dietetic treatment, graduated rest and work, the employment of appropriate drugs when indicated, specific treatment by means of the various tuberculins, etc., and heliotherapy, or treatment by the direct action of the sun's rays.

The treatment of Pulmonary Tuberculosis by means of the production of artificial pneumothorax is somewhat complicated, and takes up a deal of time, and because of the reduction in our medical staff has not been practised as frequently as I could have wished. The cases we have treated have been successful. One patient who was subject to hæmorrhage from the lungs almost fortnightly for a period of two years, and consequently lost much time at work, has had no hæmorrhage for nine months, has gained weight, lost his cough, and been able to follow his occupation since treatment. Another patient who was in bed for one year in a Sanatorium on account of hæmorrhage, and who has had a pneumo-thorax produced, is now almost free from hæmorrhage, and is able to get up and walk a fair distance daily. A third patient who came to us with a high temperature, and was confined to bed for some weeks, after treatment is able to walk between four and five miles daily, and has lost her cough and expectoration.

Mr. Hall-Rose continues to attend once weekly to instruct the patients in breathing exercises; most of them like the instruction, and in many cases excellent results have been obtained.

It should be noted that figures quoted under the heading of Sanatorium treatment do not represent the result, in most cases, of a complete course of treatment; they are a record of the patients' condition when he leaves the Institution to continue treatment at the Centre, or under his own doctor.

## SCHOOL WORK.

The advantage of school work, including interesting occupations, regulated daily by the doctor, is again very obvious. Children are happier and make more progress medically when suitably employed, and their education does not suffer whilst in the Sanatorium.

The Schoolmistress, Miss Elrick, has given me the following short report:—

"During the last year 177 boys and 166 girls have attended school. Lessons begin in the morning at 9 and finish at 12, and in the afternoon are from 2 to 4.

The mornings are devoted chiefly to the mental subjects, as the children are then fresher, and the afternoons are given up almost entirely to hand-work in some form or other. During both the mornings and afternoons there are intervals for games, musical drill, etc.

The curriculum includes scripture, arithmetic, reading, literature, writing, composition, dictation, geography, history, nature study, drawing, singing, drill, games, simple talks on health, sewing, knitting, and hand-work in its various forms.

The older children are taught Coiled and Indian Basketry, and this proves a very delightful subject to them, but the great drawback is that many of the children do not stay long enough to see their work completed, especially in the case of the slower children.

For some subjects the older children are arranged in groups according to their ability in that particular subject, and a capable child is chosen as a leader of the respective groups. This proves to be very successful, and the children work well in order to gain promotion to a higher group.

A little gardening was done last year, but we are hoping this year to have a plot of ground of our own, so that each child can be responsible for his or her own garden and tend what he or she grows.

We are also hoping to include light woodwork in the curriculum for the older boys, but the difficulty at present is the cost of the tools, etc., owing to the advance in price of all materials. A doll's house containing four rooms has been commenced by the boys for the little ones, who are eagerly looking forward to paper-hanging and furnishing it themselves.

Co-operative hand-work is taken with the children, and many pretty and effective models are made connected with literature, geography and history, and in this way the child's character is developed by learning to do a piece of work in co-operation with others without quarrelling, and the spirit of give and take becomes of great importance to him."

On discharge a letter is sent to the schoolmaster in charge of the school which the child will attend, stating whether the case is an infectious one or not, and asking that the child may be submitted to no unusual mental or physical strain; he is also asked to communicate with the parents if there is reason to think the child is failing.

## THE MAINTENANCE OF DISCIPLINE.

The difficulties which arise from time to time in the Sanatoria as the result of attempts to maintain discipline, and see that treatment is properly carried out have been more apparent than in previous years. This, I think, has been accounted for by two factors:—(1) The admission of a large number of soldiers to the Sanatoria who have previously spent a long time in other hospitals,

and being more or less convalescent, are thoroughly tired of treatment before admission, and (2) by the prevailing high wages which at present can be earned. Many of our patients, who are really incapable of doing hard work, can command a good wage at work which seems to be within their compass, and are naturally not anxious to remain in a Sanatorium so long as they should. Added to these factors we have to face the fact that many people come to the Sanatoria with the idea that they are starting out on a holiday, where they will be free to follow their own inclinations. The realisation of this idea would, of course, be productive of chaos, and the results arising from the lack of control and direction would in many instances be disastrous.

Medical men and others with experience of Tuberculosis work are convinced that the patient must fight a prolonged and strenuous battle if the disease is to be overcome. Every day spent in a Sanatorium is of value and should be made the most of. The restriction of patients' liberties to a small extent is unavoidable whilst in a Sanatorium, but does not exceed the restrictions which are imposed in other hospitals.

Compliance with the rules and regulations of the Institution should be cheerfully accepted; it is essential to the well-being of the community within its boundary fence.

I feel that in many cases of pulmonary tuberculosis there is a distinct mental atmosphere which is not altogether normal, and which undoubtedly makes the work of doctors and nurses who have to deal with them in institutions one of some difficulty. This is a fact which is perhaps not sufficiently appreciated.

During the year 18 patients were dismissed from our Sanatoria, and 117 left prior to the completion of the period for which treatment was recommended and sanctioned.

The total number of patients passing through all the Sanatoria during the year was 2,289, so that the 18 discharged represent 78%, whilst the 117 patients who left prior to the completion of treatment represent 5.11% of the total admissions. Of the 18 patients who were discharged 16 were males and 2 were females. Of the males 3 were discharged soldiers. Four males were discharged for being drunk, and the remaining patients were discharged for repeated disobedience and breach of rules after being duly warned. When a patient leaves before completing treatment he is usually asked to state in writing his reason for going. In the great majority of cases it was for domestic reasons, *i.e.*, illness at home, no one to look after the husband or children, etc., that he was unable to settle down, or to make himself contented, etc.; difficulty as to sickness benefit is also alleged. When going they usually left on the best of terms with the staff, and frequently thanked the sister or doctor for the kindness and attention they had received. Too frequently, however, this was not the end of the matter, and it was soon apparent that the patient had given to those responsible for the provision of his treatment an entirely different reason for leaving, which often implied:—(1) Improper administration of the institutions; (2) insufficient or improper feeding; or (3) unkindness or harshness on the part of the medical or nursing staff.

This change of attitude on the patient's part is easily accounted for.

On leaving the Sanatorium prematurely they are asked to state their reasons for doing so, and find, unless they can give some satisfactory explanation, which will not be regarded as frivolous, and which will justify their action, that they are faced with the possibility of having sickness benefit withheld.

In other words, they have to plead justification or be penalised. In pleading justification, institutions and staffs are not often spared; in some instances statements frivolous and unreasonable are brought forward as an excuse.

Were the patient able to prove the charges made in other instances, the officials concerned would doubtless have fared ill at the hands of the Committee.

If they are unable to prove them, and if after investigation they are found to be baseless, they should be compelled to withdraw them.

This omission has produced after frequent repetition a bad effect. When patients recognise that they are saddled with no responsibility for any charge which they may think fit to bring, they become emboldened, aggressive, and at times abusive.

As a result nurses in the wards are faced with the problem of having to accept a male patient's aggression, or to protest against it, and possibly be charged later with unkindness, ill-temper, or worse.

The circumstances surrounding every complaint that is made require the most careful scrutiny before investigation is set on foot. Without experience it is impossible to realise the amount of time and energy that can be wasted over baseless charges which, during the present period of greatly curtailed medical and nursing staffs, might be more profitably utilised.

#### PATIENTS TREATED DURING THE YEAR.

During the year 1916 1,207 patients were admitted to the Sanatorium and 1,205 were discharged. Of the 1,205 patients who were discharged 477 were males, 384 were females, and 344 were children.

Of the male patients 81 were admitted to the Observation Cubicles, and 126 women were also admitted for the purpose of observation. Twenty-two males had to be admitted to Yardley Road for various reasons, and are classified as "Probationary" patients. They were very advanced and acute cases, 4 of them died, 4 left within a day or two of admission, 2 were transferred to West Heath Hospital, and 12 remained for treatment, and are included in the following tables.

Of the males admitted during the year 143 died; with the exception of the 4 "probationary" cases, they were Poor-Law patients.

The classification on admission of the 1,205 patients discharged from the Sanatorium during the year is set out below :—

Males for observation	...	...	...	...	...	...	...	...	80
Females for observation	...	...	...	...	...	...	...	...	126*
Females for treatment	...	...	...	...	...	...	...	...	259
Children for treatment	...	...	...	...	...	...	...	...	344
Poor Law Male Patients	...	...	...	...	...	...	...	...	274
Probationary Males	...	...	...	...	...	...	...	...	22*
Total									1,205

\* Of observation females 81 remained for treatment, and 16 probationary males, 4 of whom died, remained for treatment.

In the following tables the male patients who were admitted for observation, none of whom were treated in the institution; those who died, and those who left within a day or two of admission are naturally not included.

Female observation cases transferred for treatment to other Sanatoria, those in whom a negative diagnosis was made, and those leaving within a day or two of admission are not included. These deductions reduce the figures for male patients to 237, for females to 340. The children treated numbered 344, so that of the 1,205 patients discharged from the Sanatorium during the year 921 are dealt with in the following tables.

"Observation" patients admitted to the Sanatorium were those who had been carefully examined at the Centre, where it was found impossible to state whether or not the patient was suffering from active Tuberculosis, and in order that further investigation might be carried out were admitted to the cubicles at Yardley Road Sanatorium reserved for this purpose. The period for observation was usually two or three weeks.

In the following table the results of cases admitted during the year for "observation" purposes are shown :—

	Positive Diagnosis.	Negative Diagnosis.	Diagnosis incompleted.	Total.
Males	67	12	2	81
Females	94	25	7	126

Those males in whom a positive diagnosis were made were transferred to Romsley Hill and Salterley Grange for treatment.

#### CLASSIFICATION OF PATIENTS.

In the table below the patients are classified according to the stage of their disease :—

	Stadium I.	Stadium II.	Stadium III.
Males	33	60	144
Females	102	127	111
Children	171	115	58

In Birmingham the classification of the patients' employment is a matter of some difficulty, and has not been attempted in this year's report. Last year it was found that about 90% of our total number of patients were engaged in indoor occupations.

Too much importance should not be attached to any table showing the age incidence of patients entering a Sanatorium for the treatment of Pulmonary Tuberculosis. Its utility as an indication of the age at which treatment is required is very apt to be fallacious. In the case of children it is quite possible that many are presented for examination as soon as the parents or friends notice anything amiss, but many adults who come up for examination tell us that they have been ill for long periods before we saw them. The difficulty, and in many instances the impossibility, of a married adult with a young family being able to apply for and accept treatment at the time when it would be most beneficial is obvious; the small amount of sickness benefit which most of our patients draw under the National Health Insurance Act in no way diminishes this difficulty.

The age incidence of those admitted to the Sanatorium is given in the following table :—

	Males.	Females.
In 1st decade	128	113
„ 2nd	76	166
„ 3rd	61	126
„ 4th	145	105
„ 5th	129	36
„ 6th	100	1
„ 7th	19	1
„ 8th	1	—
Total	659	548



## WORKING CAPACITY (MALES).

		Total No.	Unimpaired.		Impaired.		Totally incapacitated.	
Stadium I.								
Before treatment	...	33	20	60.60%	9	27.27%	4	12.12%
After treatment	...	33	24	72.72%	7	21.21%	2	6.06%
Stadium II.								
Before treatment	...	60	3	5%	38	63.63%	19	31.66%
After treatment	...	60	14	23.33%	34	56.66%	12	20%
Stadium III.								
Before treatment	...	144	—	—	51	35.41%	93	64.58%
After treatment	...	144	4	2.77%	79	54.85%	61	42.36%

## WORKING CAPACITY (WOMEN.)

		Total No.	Unimpaired.		Impaired.		Totally incapacitated.	
Stadium I.								
Before treatment	...	102	17	16.66%	80	78.43%	5	4.901%
After treatment	...	102	83	81.37%	18	17.64%	1	.98%
Stadium II.								
Before treatment	...	127	2	1.57%	115	90.55%	10	7.87%
After treatment	...	127	82	64.56%	41	32.28%	4	3.14%
Stadium III.								
Before treatment	...	—	—	—	49	44.14%	62	55.85%
After treatment	...	111	26	23.42%	48	43.24%	37	33.33%

## WORKING CAPACITY (CHILDREN).

		Total No.	Unimpaired.		Impaired.		Totally incapacitated.	
Stadium I.								
Before treatment	...	171	33	19.29%	137	80.11%	1	.59%
After treatment	...	171	149	87.13%	22	12.86%	—	—
Stadium II.								
Before treatment	...	115	7	6.08%	104	90.43%	4	3.47%
After treatment	...	115	101	87.82%	14	12.17%	—	—
Stadium III.								
Before treatment	...	58	—	—	35	60.34%	23	39.65%
After treatment	...	58	19	32.77%	33	56.89%	6	10.34%

It should be noted that the figures given in tables respecting patients who have left the Sanatoria relate to the period immediately following treatment in an Institution, and are therefore taken at the most advantageous time.

## WEIGHT.

## “Poor-Law” Males.

				Total No.	Gained.	Lost.	Stationary.
Stage I.	...	...	...	33	31	1	1
Stage II.	...	...	...	60	56	2	2
Stage III.	...	...	...	144	113	22	9

## Women.

		Total No.	Lost Weight.	Station- ary.	Gain of 1 to 5.	Gain of 6 to 10.	Gain of 11 to 15.	Gain of 16 to 20.	Gain of over 20lbs.
Stage I.	...	102	—	1	63	24	13	1	—
Stage II.	...	127	6	4	52	36	25	3	1
Stage III.	...	111	17	7	40	29	16	2	—
			—	—	—	—	—	—	—
			23	12	155	89	54	6	1
			—	—	—	—	—	—	—

## Children.

		Total No.	Lost Weight.	Station- ary.	Gain of 1 to 5.	Gain of 6 to 10.	Gain of 11 to 15.	Gain of 16 to 20.	Gain of over 20lbs.
Stage I.	...	171	—	6	49	67	40	8	1
Stage II.	...	117	—	4	31	52	24	2	2
Stage III.	...	58	—	1	22	24	6	3	2
			—	—	—	—	—	—	—
			—	11	102	143	70	13	5
			—	—	—	—	—	—	—

## SPTUM.

*Women.*

	Total No.	T.B. +		T.B. -		No Sputum.	
Stage I.							
Before treatment ...	102	15	14.705%	34	33.33%	53	51.96%
After treatment ...	102	12	11.76%	31	30.39%	59	57.84%
Stage II.							
Before treatment ...	127	18	14.17%	55	43.31%	54	42.51%
After treatment ...	127	14	11.02%	51	40.15%	62	48.82%
Stage III.							
Before treatment ...	111	40	39.21%	48	43.24%	23	20.72%
After treatment ...	111	37	33.33%	48	43.24%	26	23.42%

*Poor-Law Males.*

	Total No.	T.B. +		T.B. -		No Sputum.	
Stage I.							
Before treatment ...	33	10	30.303%	12	36.36%	11	33.33%
After treatment ...	33	7	21.21%	16	48.48%	10	30.303%
Stage II.							
Before treatment ...	60	32	53.33%	17	28.33%	11	18.33%
After treatment ...	60	30	50%	18	30%	12	20%
Stage III.							
Before treatment ...	144	98	68.05%	41	28.54%	5	3.45%
After treatment ...	144	82	56.94%	57	39.58%	5	3.45%

Of the 344 children only 52 had sputum. Tubercle bacilli were found in 4 cases.

During the year 2,396 specimens were examined in the laboratory.

The following table shows the treatment which was recommended for the women and children on their discharge from the Sanatorium.

					Recommended Dispensary Treatment.	Recommended Domiciliary Treatment.	Returning to their own Doctor.	Total.
Women ... ..					246	94	—	340
Children ... ..					336	5	3	344

## REPORT ON SALTERLEY GRANGE SANATORIUM.

(BY DR. E. G. GLOVER, MEDICAL SUPERINTENDENT.)

I beg to submit a report on the working of this Sanatorium for the year ending December 31st, 1916.

The arrangements made in the second quarter of the year 1915 for increased accommodation, bringing the total capacity of the Sanatorium up to 97 beds, have been continued throughout 1916. The total admissions consequently show a definite increase over previous years, this increase consisting largely of male patients.

## ADMISSIONS.

During the twelve calendar months ending 31st December, 1916, there were admitted 377 cases, of whom 252 were males and 125 females, and all of whom, excepting 76 (29 males and 47 females) were insured cases.

These admissions show an increase of 29 over those of the previous year, and an increase of 105 on the admissions of 1914, when the capacity of the Sanatorium had not been increased. Of 377 admitted 344 were sent direct from the Tuberculosis Centre, and 33 (23 males and 10 females) were transferred from Yardley Road Sanatorium after a short period of observation there. During the year 22 old cases (17 males and 5 females) were re-admitted, constituting 6 per cent. of the total admissions. This figure is rather misleading, inasmuch as it represents only that number of cases where the exacerbation was sufficiently slight to warrant retention of the case amongst the "early" groups. Other patients breaking down during the same period would be sent either to institutions for advanced cases, or continued at the Out-patient Department, or recommended for domiciliary treatment.

## AGE INCIDENCE.

				Males	Females.	Total.
10—15 years ... ..				10	5	15
16—20 " ... ..				39	20	59
21—30 " ... ..				76	60	136
31—40 " ... ..				89	34	123
41—50 " ... ..				33	5	38
51—60 " ... ..				5	1	6
				252	125	377

There is practically no alteration in the various percentages of age incidence except for the years 14—15, in which instance 4 per cent. were admitted, as against '8 per cent. in 1915. This is due to the number of adolescents with quiescent lung disease and cervical glands admitted during the year for sun treatment.

#### OCCUPATION.

As a rule there is little of value to be deduced from the details of occupation of cases selected for admission, on account of the favourable type of their disease, particularly in a city like Birmingham, where diversity of occupation, especially as regards metal trades, is a striking feature. It is of interest to note, however, that 104 male patients were metal workers, and 25 of these were directly concerned in the making of munitions. 18 women were metal workers (excluding polishers), and 11 of these were munition workers.

During the year 49 ex-soldiers were admitted (*i.e.*, nearly 20 per cent. of all the male cases), of whom 24 had been on foreign service and 25 had become affected during training. 31 belonged to infantry regiments (Warwicks, 17; Worcesters, 5; Shropshires, 3; other six regiments, 6). Artillery, 6; Engineers, 4; R.A.M.C., 3; A.S.C., 3; Navy, 2. A note as to the condition of disease in these cases will be found below.

#### CLASSIFICATION OF PATIENTS.

Group (Turban-Gerhardt).	Males.	Females.	Total.
I. Slight ... ..	53 ...	58 ...	111
II. Mod. advanced ... ..	145 ...	50 ...	195
III. Advanced ... ..	42 ...	8 ...	50
IV. ... ..	12 ...	9 ...	21
	<hr/> 252 ...	<hr/> 125 ...	<hr/> 377

Owing to the large number of direct admissions from the Centre (only 9 per cent. were transferred from Yardley Road Sanatorium) the Turban classification is of more interest than usual. The group distribution of female cases is practically the same as in normal times. There is, however, a notable increase in the number of moderately advanced male cases. This tendency was noted in 1915, although not quite to the same extent; it is largely accounted for by the fact that cases usually sent to Yardley Road Sanatorium have been distributed amongst the other institutions, and a less rigorous selection of early or favourable cases has had to be made. Probably the difficulty in these times of persuading patients to undergo examination in the early stages, or once examined to undergo Sanatorium treatment, accounts for the relatively small number of cases in Group I. (males).

The figures for Group IV. (*i.e.*, cases found after admission to have obsolete lesions, or proved to be non-tuberculous) are more approximate than usual, owing to the smaller time available for differentiating obsolete from quiescent lesions.

The following disease classification of ex-army cases is of interest:—

Group (Turban-Gerhardt).	Foreign Service.	In Training.	Total.
I. Slight ... ..	5 ...	5 ...	10
II. Mod. advanced ... ..	16 ...	15 ...	31
III. Advanced ... ..	3 ...	5 ...	8
	<hr/> 24 ...	<hr/> 25 ...	<hr/> 49

These figures are rather too slender to base definite conclusions on, but they suggest either that under training or foreign service conditions the initial progress of the disease is more rapid, or that diagnosis is not as a rule arrived at in the early stages.

Eight of these cases (Group I., 1; Group II., 7) were ex-Sanatorium patients, but even after deducting these from the total, 32 out of 41 (78 per cent.) had either moderately advanced or advanced disease. It would seem also that the conditions resulting in active tuberculous disease are not peculiar to foreign service at the actual front. The numbers of those breaking down during training are practically the same as of those living under fighting conditions. It might, of course, be held that the preliminary training weeded out those with weak resistance, and that under foreign service conditions those who had previously escaped finally broke down. No doubt this is to some extent true, but it does not account for the similarity in percentages of advanced cases in both divisions. If it were solely a question of more or less effective resistance, one would expect to find a large number of foreign service cases in Group I., which is not the case. These figures, it should be noted, apply only to selected cases of a more or less favourable type.

#### DISMISSALS.

During the same period 375 cases were dismissed, of whom 245 were males and 130 females.

In estimating the results of treatment the following factors, given in order of importance, the more immediate and less permanent coming first, have to be taken into account, *viz.*, increase in weight, alteration in working capacity, results of sputum examinations, condition of disease on dismissal, and ultimate prognosis

WEIGHT.  
Patients showing increase in weight.

Increase in lbs.	1-7.	7-14.	14-21.	21-28.	Over 28.	Total.
Males ... ..	96	90	32	4	2	224
Females ... ..	57	47	17	—	2	123
Total ... ..	153	137	49	4	4	347

Percentage showing increase, 92·5 per cent.

*Weight Stationary*—Males, 8; Females, 2; Total, 10 (2·6 per cent.).

*Weight Lost*—Males (1 lb., 3; 2 lbs., 3; 4 lbs., 1; 5 lbs. and over, 6), 13; Females (1 lb., 1; 2 lbs., 2; 3 lbs., 1; 5 lbs., 1), 5; Total, 18 (4·8 per cent.).

Greatest increase in weight—Male, 31½ lbs. (69 days). Female, 29½ lbs. (80 days).

In the above tables, as in those that follow, due allowance must be made for those patients who leave the Sanatorium within a short period from admission, and who cannot be held to have carried out treatment. The effect of these cases on statistics is shown in detail in the table dealing with condition of disease on dismissal.

WORKING CAPACITY.

MALES.					FEMALES.				
Group.		A*	B	C	Group.		A	B	C
I.	Admission	16	41	—	I.	Admission	21	39	—
	Dismissal	51	5	1		Dismissal	47	12	1
II.	Admission	10	128	3	II.	Admission	11	47	1
	Dismissal	102	35	4		Dismissal	40	19	—
III.	Admission	2	40	5	III.	Admission	—	10	1
	Dismissal	18	16	13		Dismissal	5	5	1
All Cases	Admission	28	209	8	All Cases	Admission	32	96	2
	Dismissal	171	56	18		Dismissal	92	36	2

\* A—Unimpaired. B—Impaired. C—Incapacitated.

The above figures are not necessarily a guide to the ultimate results of treatment, but they represent one of the most profitable returns—from the financial point of view—for the expenditure on the treatment of consumptives. Of those returned on dismissal as of “unimpaired” working capacity, the great majority will be able to follow their usual employment without loss of time for at least the greater part of a year, and many of them for much longer periods. Compared with the figures for 1915, the number admitted with impaired working capacity is much greater both for females and for males, whilst the improvement in working capacity on dismissal is naturally more notable.

RESULTS OF SPUTUM EXAMINATIONS.

The following table shows the results of examination on admission and on dismissal:—

Group		TB +		TB -		No Sputum.	
		Males.	Females.	Males.	Females.	Males.	Females.
I.	Admission ... ..	8	1	33	31	17	28
	Dismissal ... ..	2	—	34	15	22	45
II.	Admission ... ..	32	6	83	28	25	25
	Dismissal ... ..	29	4	64	22	47	33
III.	Admission ... ..	26	2	16	4	6	5
	Dismissal ... ..	21	2	21	3	7	6
All Cases	Admission ... ..	66	9	132	63	48	58
	Dismissal ... ..	54	6	119	40	76	84

From the point of view of bacillary loss the above table requires some amplification. Many of the cases without bacilli, or without sputum, at the first examination, on admission are found to have bacilli after more careful subsequent examination. Any subsequent loss is not credited to the institution in the above table. The following figures give a more correct idea of the actual improvement from the bacteriological standpoint.

	O becoming TB+.	TB- becoming TB+.	TB+ becoming O.	TB+ becoming TB-.
Males ... ..	1	21	10	27
Females ... ..	1	5	3	5
Total ... ..	2	26	13	32

The following table shows the actual bacillary loss in each group:—

	MALES.				FEMALES.				All Cases.
	I.	II.	III.	Total.	I.	II.	III.	Total.	
TB+ on Admission ... ..	9	46	33	88	1	10	4	15	103
TB+ on Dismissal ... ..	2	29	21	52	—	4	2	6	58

The noteworthy features of the foregoing tables are as follows:—

Percentage of all admissions with TB+ (males) = 35.9%  
(females) = 11.5% } = 27.4%

Percentage of TB+ cases becoming TB- or O. (males) = 40.9%  
(females) = 60% } = 57.2%

The numbers losing bacilli in 1916 are greatly in excess of the numbers for 1915, which were:—Males, 46.06 %; females, 42.1%; total, 45.39%. This inflation is largely due to the small numbers of female cases with bacilli on admission, and the high percentage cannot therefore be regarded as a normal factor. Omitting altogether the figures for female cases, it will be noted that the bacillary loss amongst males for 1916 closely resembles that for 1915. This is an important point because, as was pointed out last year, the percentage of bacillary loss in other sanatoria set apart for the treatment of early or favourable cases averages 25%—30%. Another point of interest is the large number of patients without bacilli, or sputum free, who nevertheless were judged, after physical examination, to be suitable cases for sanatorium treatment. This indicates that diagnosis in “early” stages is being efficiently carried out. The question of what proportions of these cases had, in spite of their physical signs, actually obsolete lesions cannot be determined without an amplification of the medical staff, which is at present impracticable.

The results of sputum examinations are of the greatest importance in appraising the value of sanatorium treatment.

Probably the most of those with no sputum throughout their stay will ultimately become permanently “arrested”; of those with no bacilli in their sputum during treatment possibly over one-half will become healed, although at a later date. The prospects of patients whose sputum becomes negative during treatment are also good, although a much more extensive period of after-treatment will be necessary, whilst in the case of those who always have a positive sputum the ultimate results are the least satisfactory. These statements are, of course, mere approximations, and are subject to numerous qualifications, both as regards previous and after history. For instance, in the above tables 8 cases (M., 4; F., 4) entered as “with negative sputum” had actually some time before been positive cases. Moreover, no conclusions can be drawn as to the curability of consumption generally from the foregoing results, because they apply to sanatoria for selected favourable cases only.

#### CONDITION OF DISEASE ON DISMISSAL.

	Males.					Females.			Total.
Much improved ... ..	...	...	...	...	37	...	36	...	73
Improved ... ..	...	...	...	...	165	...	86	...	251
<i>In statu quo</i> ... ..	...	...	...	...	36	...	5	...	41
Worse ... ..	...	...	...	...	7	...	3	...	10
	...	...	...	...	245	...	130	...	375

The above categories require some slight explanation. The term “much improved” is strictly reserved for those who are either arrested at the time of dismissal or are likely to become arrested within a few months afterwards. Of the 73 noted as much improved, 17 (M., 7; F., 10) were almost certainly arrested on dismissal, and the remainder were almost certain to follow suit within a short period. The group “improved” includes many who were very considerably better than on admission, but of whom it could not be said with certainty that they would become arrested within six months. It includes also many whose improvement would



only be temporary. In spite of the strictness of this classification the results, considered from the point of view of arrest, or of almost immediate arrest, are very satisfactory. Compared with those of 1915 it will be found that whilst the females cases have improved in the same ratio, there is a notable decrease in the numbers of males cases "much improved," a result which is in keeping with the alteration in methods of selection.

#### DURATION OF TREATMENT.

It has already been pointed out that no tables of results can be properly appreciated in the absence of various data, the most important of which is the duration of treatment. This is especially the case with the condition of disease on dismissal. It will be noted that practically 11 per cent. of all dismissals showed no alteration in physical signs. The following table makes the reason for this quite clear:—

Duration in Months.	MALES.							FEMALES.						
	1	1-2	2-3	3-4	4-5	5-6	Over 6	1	1-2	2-3	3-4	4-5	5-6	Over 6
Much improved	—	7	10	14	3	2	1	—	1	7	14	12	1	1
Improved ...	2	61	60	21	13	6	2	4	20	23	23	8	6	2
<i>In statu quo</i> ...	19	4	8	3	2	—	—	4	—	1	1	—	—	—
Worse ...	—	—	—	2	1	—	4	—	—	—	—	1	—	2

It will be seen that the great majority of those leaving *in statu quo* had not completed treatment, and that, as far as sanatorium treatment is concerned, only 4 per cent. at the very most had not shown any notable alteration in physical signs. This table is of interest in other directions. The most of those brought within easy reach of arrest had completed from 3—4 months' treatment, although in the case of female patients the progress is not so rapid as with male patients. As regards general improvement, this also is more rapid amongst the males, a natural corollary to the method of selection. It would seem, therefore, that to obtain the best results for the greatest number treatment over a period of 3—4 months should be aimed at.

The average duration of treatment in days was 86.2, as compared with 84.2 for 1915 and 73.9 for 1914. During the year 57 cases left before the completion of the recommended period of treatment. Of these 15 left with permission owing to domestic troubles; 29 left against advice, as a rule because they were unwilling to submit to the restrictions of sanatorium life, and 13 (3.7 per cent. of all discharges) were dismissed for breaking rules.

#### ULTIMATE PROGNOSIS.

With the information previously recorded it is possible to give a rough idea of the probable course of the disease amongst those discharged.

	Males.				Females.				Total.
Ultimate arrest probable ...	...	...	...	...	...	...	...	...	227
Fatal termination probable ...	...	...	...	...	...	...	...	...	47
Result doubtful ...	...	...	...	...	...	...	...	...	101

These prognostications are simply based on personal observation of the type of disease and the reaction to appropriate treatment. They do not pretend to any finality, and, as has been noted before, any deductions based on them would apply only to sanatoria dealing with early or favourable cases.

#### TREATMENT.

Of 375 cases dismissed, 297 (196 males and 101 females) received Tuberculin treatment, *i.e.*, after deducting those who discontinued treatment shortly after admission, and those cases where, owing to fever or advanced disease, Tuberculin was contra-indicated, practically all cases commenced a course of injections. As before, the variety of Tuberculin given was Koch's P.T.O., in order that after dismissal the patient might continue on a pre-arranged course at the Tuberculosis Centre. A few cases stayed long enough to complete the course of P.T.O. and commence treatment with P.T. A few selected cases were given B.E., usually those with a slight low fever or with secondary deposits of tuberculosis in some of the other body-systems; a few were given A.F. In the bulk of cases the results of tuberculin injections cannot be estimated during the short course of sanatorium treatment. These must be looked for in the after-histories at the Tuberculosis Centre. Where immediate results were expected they were, if anything, more satisfactory than usual.

During the summer months a few cases were given a regulated course of sun treatment. In some of these the immediate results were quite striking, but the total number treated was small, the selection haphazard, and the sun records poor. No results of importance can be tabulated on this occasion. The bulk of patients are encouraged to take modified sun baths, but a complete course interferes so much with the ordinary routine of treatment that any more detailed sun treatment is not practicable.

REPORT ON ROMSLEY HILL SANATORIUM.  
(By DR. PETER ALLAN, MEDICAL SUPERINTENDENT.)

I beg to submit the following report of the working of Romsley Hill Sanatorium for the year 1916.

During the year the number of beds was again increased by the addition of another chalet for eight beds, so that the total number of beds is now 140.

761 new cases were admitted, of whom 666 come from Birmingham, and with these only this report deals.

The increase in the number of beds was attended with necessary increase in the various plant. The sewage scheme was found to be quite inadequate to cope with the increased number of patients, and this plant therefore had to be considerably increased.

The boiler and lighting plant are also inadequate, and an increase in this direction is under consideration by the Romsley Hill Committee.

The grounds of the sanatorium are also rather restricted for the increased number of patients, especially now when we are making every endeavour to grow more vegetables. To overcome this feeling of restriction the patients have been allowed to go for walks in the surrounding country, varying from one mile to three miles. The patients go out in groups of five or six, under the direction of a "Captain," who is responsible for the group.

This privilege seems to be much appreciated by the patients.

The patients are much indebted to several friends who have kindly given little entertainments during the year, and especially to Mr. William Bartlett, who was Chairman of the Romsley Hill Committee, 1914-15, and who organized many of the entertainments.

The year 1916 was a most trying year for patients undergoing sanatorium treatment.

At the beginning and also at the latter end of the year there were severe snowstorms, and also epidemics of influenza. During December the epidemic of influenza became so general that at one time there were seven of the staff and sixty patients in bed. After consultation with Dr. Robertson and the Honorary Secretary (Mr. W. S. Aston), some thirty patients who were not affected were sent to their homes. Another thirty patients who were told they might go home asked to stay and help those who were victims of the epidemic, and with our diminished staff their help was most welcome.

I herewith append in tabular form the statistics for the year 1916.

Statistics relating to patients at Romsley Hill Sanatorium for the year ended 31st December, 1916.

				Males.		Females.
No. of patients resident January 1st, 1916	...	...	...	67	...	32
No. of patients admitted during the year	...	...	...	492	...	174
				<hr/> 559		<hr/> 206
No. of patients discharged during the year	...	...	...	495	...	190
No. of patients died during the year	...	...	...	7	...	2
				<hr/> 502	...	<hr/> 192
No. of patients resident January 1st, 1917	...	...	...	57	...	14

The stages of disease of patients admitted, according to Turban's Classification, are shown as follows:—

					Stage I.	Stage II.	Stage III.
Men	...	...	...	...	23	385	84
Women	...	...	...	...	26	123	25
					<hr/> 49	<hr/> 508	<hr/> 109

The age incidence of the patients admitted is shown by the following table:—

		Years	10-15	16-20	21-30	31-40	41-50	51-60	Over 60.
Males	...	...	19	51	123	183	94	21	1
Females	...	...	8	17	58	61	20	7	2
			<hr/> 27	<hr/> 68	<hr/> 181	<hr/> 204	<hr/> 114	<hr/> 28	<hr/> 3

The working capacity of the patients on admission was as follows:—

					"A" Capacity for work Unimpaired.	"B" Capacity for work Impaired.	"C" Total incapacity for work.
Males	...	...	...	...	—	342	150
Females	...	...	...	...	—	127	47
					<hr/> —	<hr/> 469	<hr/> 197

The following table shows the sputum analysis of the 765 cases receiving treatment during the year :—

					T. B. +		T. B. —		No Sputum.
Males	...	...	...	...	248	...	252	...	59
Females	...	...	...	...	48	...	97	...	61
					296	...	349	...	120

Tuberculin was administered to 255 cases out of 765, viz. :—

Males	...	...	...	...	164
Females	...	...	...	...	91
					255

The following table shows the condition of the 694 patients discharged :—

					Improved.	Not Improved.	Discontinued treatment.	Died.
Males	...	...	...	...	415	45	35	7
Females	...	...	...	...	160	22	8	2
					575	67	43	9

The working capacity of patients discharged is shown in the following table :—

					A	B.	C.	Died.
Males	...	...	...	...	189	268	38	7
Females	...	...	...	...	78	110	20	2
					267	378	58	9

The average stay in days was :—

Males	...	...	...	...	54.4
Females	...	...	...	...	59.3

The average gain in weight was :—

Males	...	...	...	...	7 lbs.
Females	...	...	...	...	6.7 lbs.

## REPORT ON WEST HEATH SANATORIUM.

(By DR. ALDRIDGE, ACTING MEDICAL SUPERINTENDENT.)

During the year 1916 there have been :—

					Men.	Women.
Admitted	...	...	...	...	132	77
Discharged	...	...	...	...	89	52
Died	...	...	...	...	40, i.e., 30 per cent.	26, i.e., 32 per cent.
Remaining in at West Heath	...	...	...	...	38	19

I know the Committee realises fully the difficulties under which the work has been carried on; the more advanced cases being treated, and the mortality (30 per cent.) being in consequence high. On the other hand, there have been many gratifying cases that have considerably improved. I believe the latest available statistics from Municipal German Sanatoria (where the earliest and most promising cases are treated) show that only about 5 per cent. of *all* cases are alive at the end of five years. We thus see how much better prevention is than cure, and that our urgent duty is to prevent infection of healthy persons by the proper segregation of the diseased.

The consumptive patient is essentially an optimist, but when the optimist is being slowly defeated his optimism is apt to fail. It is an easy matter for a general to lead his men on to victory, but it requires skill of the highest degree to lead men cheerfully to what must sooner or later be sure defeat. A patient who knows he is steadily improving will endure any discomfort or apparent hardship cheerfully, being kept up by the hope that "it is not for long," and that soon he will be able to return home. On the other hand, a patient who is steadily going down hill and feeling worse every day is apt to grumble and invent imaginary grievances, especially when these patients are drawn from the lower walks of life, and have few, if any, interests or resources outside themselves.

Again, Consumption (unlike cancer) is essentially the disease of the *young*, of those who have been unfairly hit in the early part of life, before having been given the chance of any proper innings, and who must therefore feel themselves "hardly used" and "unfairly treated."



## REPORT ON WITTON HOSPITAL.

(By DR. P. CAMPBELL, MEDICAL SUPERINTENDENT.)

At Witton Hospital 1916 began with 54 patients under treatment for Tuberculosis, and during the year 156 cases were admitted, 76 were discharged, while 52 died, and the year closed with 82 patients remaining.

In most of the cases admitted the disease was far advanced, one patient dying four hours after admission, 4 within a week, 7 within a fortnight, 11 within a month, and 2 patients died suddenly from severe hæmoptysis.

Of the 76 cases discharged 9 went out within one week of admission, 9 between one and two weeks, 13 between two and three weeks, 20 between three and six weeks, 9 between six and nine weeks, and 8 between nine and twelve weeks.

Twenty-six patients took their discharge against my wishes—some because they got frightened when they saw some serious cases in the same ward and some deaths—some because they had left a young family at home in charge of the neighbours, and they were being neglected, and others because they felt so much better that they felt they ought to be out and at work earning the good wages obtained by female labour at present.

Most of the other 50 cases discharged would be able to follow some light occupation, or with care perform their ordinary household duties.

In most of the less advanced cases two or three weeks in hospital showed a marked improvement in their condition, the rest, fresh air, good food and general hygienic treatment causing them to gain weight and strength, while the frequency of their coughs diminished and their sputum was less. After a month or six weeks one had often much difficulty in keeping them longer, they were so anxious to be out to work. Some of the most advanced cases also showed improvement, and a few of them lived for months when from their condition on admission one would judge they could not have lived many more days had they not been removed from their unhealthy surroundings, where they had been sadly neglected.

Twenty cases of those remaining in hospital had been inmates for over a year.

With the erection of another shelter, which was ready in June, more patients were able to remain out in the grounds, and it also enabled another 5 patients to sleep out in the open air, making 11 in all.

Six cases slept out all the year round, and none of them would now go back to sleep in the wards. Several more would like to sleep out were there accommodation for them.

The children, of whom there are about 25, invariably do very well, and a schoolmistress attends two afternoons a week to see to their educational wants.

With so many advanced cases in hospital the nursing staff have a very strenuous time, and it must be very discouraging for them to see so many cases admitted which are absolutely hopeless. However, I much appreciate the patience and tact displayed by the whole staff, who do all in their power to make their patients happy and contented.

During the summer the various simple games and competitions on the lawn are eagerly looked forward to by all, and in the winter the concerts, at which several little plays are performed by the staff and some of the patients, do much to cheer up the patients, and thus encourage the staff to further their efforts on their behalf.

## TUBERCULOSIS AND THE MILK SUPPLY.

(REPORT BY MR. JOHN MALCOLM, M.R.C.V.S., Veterinary Superintendent.)

I have pleasure in submitting herewith a short report of the work done last year in connection with the inspection of cows and cowsheds in the city, and the efforts to minimise the degree of Tubercle infection in the Birmingham milk supply.

## INSPECTION OF COWS AND COWSHEDS IN THE CITY.

During the year 1916 the inspection of cows and cowsheds has been systematically carried out by the Veterinary Inspectors as heretofore, though fewer visits have been made owing to the war reduction in the Veterinary staff. Cow keepers, dairy farms, sheds and cows in the city at the end of the year were as follows :—

Cowkeepers.	Dairy Farms.	Sheds.	Cows.
141	149	342	2,025

During the year seven farmers have commenced and one former dairy farmer has resumed cow-keeping, and eight former dairy farmers have discontinued keeping cows.

Besides the above farms there are thirty-six others where dairy cows were formerly kept, but where none are at present.

1,907 visits of inspection have been paid to cowsheds in the city area. At each visit the Veterinary Inspector examined both cows and cowsheds.

Forty cows were found affected with catarrhal mastitis or inflammation of the udder, and six with emaciation, two of which proved to be due to Johne's disease and four to anæmia. The milk from these cows was prohibited from sale, temporarily or permanently, according to the case.

The continued scarcity of labour has made it very difficult to maintain the former high standard of cleanliness of the cows and cowsheds in some instances, but the great majority of the farmers have continued to do their best, and on the whole the condition of the cowsheds and the cleanliness of the cows inspected have been satisfactory.

TUBERCULOSIS AND THE MILK SUPPLY.

## COW TESTING.

The testing of the above herds has been carried out half-yearly.

The results of the testing again show that breeding dairy herds into which only young heifers are introduced can be maintained in a tubercle-free state easily and economically. On the other hand, those Birmingham herds which have to be kept up by the purchase of mature milking cows can only be kept free with some difficulty, though Birmingham dairy farmers systematically buy the best cows they can obtain. This difficulty is owing to the non-reaction to tuberculin of some of the new purchases, which is due either to their being very recently infected, or to their having acquired a tolerance to the tuberculin test as a consequence of their having been previously recently tested.

It is here of interest to record that in establishing tubercle-free herds, and keeping such up by home breeding, these herds have been coincidently maintained free from two other contagious diseases, viz., contagious abortion and John's disease. It is found that when a herd is free from these diseases, and kept up by home breeding, it is maintained free, since such diseases are set up in a free herd by the introduction of infected stock.

A point of real importance in connection with the spread of tuberculosis is the easy transmission of the disease from healthy-looking Tuberculin reactors to tubercle-free cattle. Our experience is that very soon after a recently-infected cow becomes a reactor she becomes capable of transmitting infection, so that many tubercle-free cows rapidly become infected by healthy-looking ones in an early stage of the disease; in fact, any reacting cow, however recently affected and however healthy looking, must be regarded as liable to spread the disease.

From the tabulated list below it will be seen that 1,668 cows were tested during the year, of which 1,453 passed and 215 failed to pass.

No.	Cows Tested.	Passed.	Failed (Reactors and Doubtful).
1	182	164	18
2	38	36	2
3	200	179	21
4	69	57	12
5	73	71	2
6	33	23	10
7	14	14	—
8	25	18	7
9	65	59	6
10	185	184	1
11	19	16	3
12	10	10	—
13	95	82	13
14	33	31	2
15	77	53	24
16	100	61	39
17	14	13	1
18	7	6	1
19	54	44	10
20	45	43	2
21	24	22	2
22	84	65	19
23	26	21	5
24	95	94	1
27	65	55	10
28	7	7	—
25	20	19	1
26	9	6	3
—	—	—	—
—	—	—	—
1,668		1,453	215

The cows which failed were again in most cases cows which were purchased subject to passing the test, and having failed were returned to the vendor. The doubtful reactors already in the herd were isolated and re-tested a month subsequently; about 50 per cent. of these eventually passed.

The newly purchased and other cows tested for the first time last year numbered 316. Of these 61, or 19.30 per cent., reacted, and 21, or 6.64 per cent., were doubtful, *i.e.*, 25.94 per cent. failed to pass the test as compared with 22.79 last year.

#### COST INCURRED BY TESTING HERDS.

The testing of the herds was carried out partly by a Corporation Veterinary Officer and partly by the dairymen's own Veterinary Surgeons, acting on behalf of the Corporation. The herds dealt with are visited periodically to see that the reactors are isolated from the free, that the cows in the free herd are being properly looked after, and the hygienic regulations are complied with.

The extra cost of this work during the year was £189 3s. 4d., of which £39 19s. was for tuberculin and £149 4s. 4d. for Veterinary fees and expenses. In 1915 the extra cost was £115 14s. 7d., and in 1914 £168 3s. 7d.

#### VENEREAL DISEASES.

There were 56 deaths recorded as due to these diseases in 1916, as compared with 44 in each of the two preceding years.

In the early part of the year under review the report of the Royal Commission on Venereal Diseases was issued. The recommendations of this Commission were submitted to a meeting of the Public Health Committee on April 14th. As a result of this the Local Government Board were asked to put in operation the chief recommendations of the Commission at the earliest possible date.

On July 12th the Public Health (Venereal Diseases) Regulations were issued, giving exactly the powers recommended by the Royal Commission.

On July 25th a letter (copy of which is appended) was sent to the Secretaries of the General Hospital and the Queen's Hospital, Birmingham, respectively. On telephoning to the Queen's Hospital in November information was received that the authorities could not undertake the work, while the General Hospital have agreed to carry out this work. At the time of going to press, however (June, 1917), the agreement had not been settled.

#### COPY OF LETTER.

Dear Sir,—In accordance with the Regulations and Memorandum of the Local Government Board on Venereal Diseases, a copy of which I enclose, I have been asked by the Public Health Committee to prepare a report on the needs of Birmingham, and for this purpose to enter into preliminary negotiations with hospitals and other necessary institutions.

You will observe from the enclosed pamphlet that the Local Government Board desire that arrangements should be made with large general hospitals, where possible, rather than with special hospitals, and that such hospitals should be available for the treatment of patients irrespective of their place of residence. It is, therefore, likely that arrangements made with a hospital in Birmingham may be taken advantage of by residents in towns or rural areas situated outside the city boundary.

In view of the depleted ranks of the medical profession in Birmingham, there may be a difficulty in at once setting up the best possible scheme. I would, therefore, point out that the Order of the Local Government Board gives power to make tentative arrangements, say, for one year, so as to allow of revision at the end of the war, or at the end of a year, if experience shows this to be necessary.

By Article III. of the Public Health (Venereal Diseases) Regulations the approval of the Local Government Board to any arrangements made by the City Council, either with a hospital or a laboratory, is required.

The general scheme, so far as it relates to treatment centres or clinics, is set out on pages 19-24 of the pamphlet enclosed, and I would ask in the first instance whether the Board of Management of the Queen's Hospital are prepared to allow the hospital to become a treatment centre as outlined in the pamphlet submitted.

If the Board of Management decide thus to assist in the prevention of Venereal Diseases, then I would suggest as follows :—

I. *Clinics.*—In view of the general medical opinion as to the small prevalence of venereal disease in Birmingham, that in the first instance only one clinic per week will be necessary for males and one for females, and that it is essential that the clinic for males should be in the evening.

II. *Hospital Beds*.—I would further suggest that to begin with the provision of one bed for males and one for females is all that is necessary.

III. *Medical Officer*.—The duties of this officer or officers are set out on pages 21-23 of the pamphlet. It will be noted that in addition to treatment he will have to give demonstrations to medical practitioners, teach medical students, and where necessary consult with medical practitioners respecting suspected venereal disease, either at the clinic or elsewhere.

IV. *Laboratory*.—At the present time it is not proposed that any laboratory work should be carried out at the general hospitals, though doubtless this may be desirable in the future.

V. *Financial Arrangements*.—In submitting the scheme to the Local Government Board it will be necessary to include an estimate of the cost during the first year, and I should be obliged, therefore, if you would let me have the estimated cost under the following heads :—

- Payment of medical officers.
- Drugs and apparatus.
- Charges for use of accommodation at hospital.
- Services of orderly and nurse.
- Use of one bed for males and one for females.
- Clerical work and postage.
- Heating, lighting, laundry and cleaning.
- (See pars. 14, 15 and 16 on page 21 of pamphlet.)

The Local Government Board fear that at the conclusion of the war, when the army is disbanded, there may be a considerable amount of venereal disease spread to the civil population, and they are, therefore, desirous that the arrangements for diagnosis and treatment should be set up as early as possible. I shall be personally very much obliged if you will lay this matter before your Board of Management at the earliest date, so that I may be able to draw up the necessary scheme for Birmingham.

Needless to add, I shall be only too pleased to furnish any further information you may require.—  
Yours faithfully,

JOHN ROBERTSON.

On September 15th, 1916, a public meeting was called in the Council Chamber with a view to deciding what could be done locally to stimulate public opinion as to the necessity of the prevention of these diseases. As a result of the meeting a Birmingham Branch of the National Council for Combating Venereal Diseases was formed, and already has done very useful work.

## CANCER.

The following table gives particulars as to site of the disease, together with the age and sex of the sufferer :—



## DEATHS FROM CANCER IN 1916.

Ages.	Month.			Stomach, Liver, &c.			Peritoneum, Intestine, etc.			Female Organs of Reproduction.			Breast.			Skin.			Other Organs.			Total.		
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.
Under 1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1 -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	3	2	1	3
5 -	—	2	2	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3
10 -	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	2	—	2
15 -	—	—	—	—	—	—	—	—	—	2	2	—	—	—	—	—	—	—	1	—	1	1	2	3
20 -	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	1	1	2
25 -	—	—	—	2	3	5	2	—	2	—	6	6	—	1	1	—	—	—	3	2	5	7	12	19
35 -	2	2	4	11	5	16	7	7	14	—	18	18	—	8	8	—	—	—	12	9	21	32	49	81
45 -	12	3	15	45	17	62	12	26	38	—	31	31	—	15	15	—	—	—	24	9	33	93	101	194
55 -	17	2	19	43	42	85	26	29	55	—	30	30	1	22	23	1	—	1	22	19	41	110	144	254
65 -	12	2	14	48	46	94	25	32	57	—	26	26	—	17	17	1	—	1	28	13	41	114	136	250
75 -	3	—	3	9	17	26	8	11	19	—	6	6	—	8	8	1	—	1	12	4	16	33	46	79
85 -	—	—	—	—	—	—	—	2	2	—	—	—	—	1	1	—	1	1	2	1	3	2	5	7
All Ages	46	12	58	158	131	289	80	107	187	—	119	119	1	72	73	3	1	4	109	58	167	397	500	897



## ACUTE ANTERIOR POLIOMYELITIS.

There were 19 cases of this very serious disease reported, as compared with 8 in 1915 and 16 in 1914. There were 3 deaths, but 9 of the survivors had some permanent paralysis.

The ages of the persons affected were :—

	Males.	Females.	Total.
0- 1 year ... ..	0 ...	1 ...	1
1- 5 years ... ..	9 ...	6 ...	15
5-10 „ ... ..	0 ...	1 ...	1
10-15 „ ... ..	1 ...	0 ...	1
15-20 „ ... ..	0 ...	1 ...	1
Over 20 years ... ..	0 ...	0 ...	0
	10 ...	9 ...	19

## CEREBRO-SPINAL FEVER (SPOTTED FEVER).

Twenty-nine cases occurred in 1916, as compared with 52 in 1915 and 10 in 1914.

The ages of the persons affected were as follows :—

	MALES.		FEMALES.	
	Cases.	Deaths.	Cases.	Deaths.
0- 1 year ... ..	1	1	2	2
1- 5 years ... ..	3	3	5	4
5-10 „ ... ..	4	2	3	2
10-15 „ ... ..	0	0	2	0
15-20 „ ... ..	4	2	2	2
20-25 „ ... ..	1	0	1	0
Over 25 years ... ..	1	1	0	0

The months of the year in which the cases originated were as follows :—

January ... ..	5	July ... ..	1
February ... ..	4	August ... ..	1
March ... ..	3	September ... ..	3
April ... ..	0	October ... ..	4
May ... ..	4	November ... ..	0
June ... ..	0	December ... ..	4

Lumbar puncture was known to have been done in 19 cases for diagnosis, while in 10 cases it was either not done or no record was available.

Of the 29 cases recovery is recorded without any paralysis in 10.

Of the cases in which a positive bacteriological examination is recorded (13 in number) 4 recovered.

6 cases were treated at the	General Hospital.
3 „ „ „	Queen's Hospital.
6 „ „ „	Children's Hospital.
1 „ „ „	Workhouse Infirmary.
1 „ „ „	a private institution.
12 cases were treated by medical practitioners.	

In addition to the above nine cases were notified, but on further examination they proved not to be cases.

The essential in this disease is to quickly make certain of the diagnosis. This can most definitely be made by drawing off and examining a specimen of the cerebro-spinal fluid. In many of the cases reported the patient was past any chance of successful treatment at the time of notification. The following letter was sent to each medical practitioner in Birmingham in October last :—

Dear Sir (or Madam),—I have been asked by the Public Health Committee to draw the attention of the Medical Profession in Birmingham to the very high mortality which has occurred among patients reported as suffering from Cerebro-spinal Meningitis. Last year there were 52 cases reported, and 41 died, giving a mortality rate of 79 per cent. This high mortality has continued during the present year. In many other areas the mortality has been lower than that in Birmingham.

The Committee are, of course, aware of the difficulties which exist in dealing with this disease, *e.g.* :—*(a)* delay in calling in a medical man; *(b)* difficulty in making an accurate diagnosis rapidly, and *(c)* the diversity of opinion as to the best treatment.

As regards diagnosis, I would suggest the desirability of lumbar puncture in all cases of doubt. There appears to be very little risk if this is properly carried out, and generally the results are definite in clearing up the nature of the disease. Specimens of cerebro-spinal fluid sent to the Pathological Department at the University will be reported on with the least delay possible. I will be glad to lend a suitable apparatus for lumbar puncture, or to ask Dr. Beazeley to meet you and assist in getting the specimen.

A supply of serum can always be obtained from this office

Both the General Hospital, the Queen's Hospital, and the Children's Hospital have promised to admit such cases if they have available bed accommodation.—Yours faithfully,

JOHN ROBERTSON.

As a result, Dr. Beazeley has attended and performed lumbar puncture in eleven cases with very helpful results.

## BRONCHITIS AND PNEUMONIA.

These diseases caused 2,154 deaths in 1916. This is equal to 18 per cent. of the total deaths from all causes.

### DEATH-RATES FROM BRONCHITIS AND PNEUMONIA.

BRONCHITIS.					PNEUMONIA.				
Birmingham.		England and Wales.			Birmingham.		England and Wales.		
1901 ...	1.80	Average 1.62	1.37	Average 1.24	1.55	Average 1.44	1.15	Average 1.27	
1902 ...	1.64		1.32		1.46		1.41		
1903 ...	1.46		1.11		1.32		1.22		
1904 ...	1.76		1.25		1.49		1.28		
1905 ...	1.43		1.14		1.37		1.30		
1906 ...	1.38	Average 1.41	1.04	Average 1.09	1.32	Average 1.30	1.22	Average 1.24	
1907 ...	1.49		1.22		1.47		1.35		
1908 ...	1.47		1.10		1.22		1.19		
1909 ...	1.47		1.15		1.36		1.30		
1910 ...	1.24		0.96		1.15		1.11		
1911 ...	1.25	Average 1.27	1.00	Average 1.13	1.16	Average 1.20	1.04	Average 1.10	
1912 ...	1.26		1.08		1.20		1.02		
1913 ...	1.20		1.06		1.13		1.02		
1914 ...	1.26		1.08		1.24		1.08		
1915 ...	1.37		1.44		1.28		1.36		
1916 ...	1.29		—		1.13		—		

### AGES AT DEATH.

							Bronchitis.		Pneumonia.	
Under 5 years ...	...	...	...	...	...	...	270	...	533	...
Between 5 and 15 years	...	...	...	...	...	...	5	...	41	...
" 15 and 25	...	...	...	...	...	...	3	...	27	...
" 25 and 35	...	...	...	...	...	...	5	...	40	...
" 35 and 45	...	...	...	...	...	...	22	...	64	...
" 45 and 55	...	...	...	...	...	...	70	...	79	...
" 55 and 65	...	...	...	...	...	...	178	...	88	...
" 65 and 75	...	...	...	...	...	...	297	...	80	...
" 75 and 85	...	...	...	...	...	...	249	...	48	...
85 years and over	...	...	...	...	...	...	49	...	6	...

## PUERPERAL FEVER.

## MIDWIVES ACT.

## OPHTHALMIA NEONATORUM.

(See *Special Report at end of this Report.*)

## CONTAGIOUS DISEASES OF ANIMALS.

(REPORT BY MR. MALCOLM, M.R.C.V.S., VETERINARY SUPERINTENDENT.)

I have pleasure in submitting report on the occurrence of some of the chief scheduled contagious diseases in animals here during 1916.

## GLANDERS AND FARCY.

There has been one case of this disease in Birmingham during the year; this was undoubtedly introduced from outside. Fortunately, the precautions taken against the spread of infection proved successful, and no other case or suspected case occurred. It is again some satisfaction to be able to record its continued decline throughout the country. Last year there were forty-six outbreaks, in which 117 animals were attacked, against fifty outbreaks, with 95 animals attacked, in 1915, ninety-seven outbreaks, with 286 animals attacked, in 1914, and 789 outbreaks, with 2,433 animals attacked in 1908—the first year under the present Glanders Order. Possibly the end of the war may again see some increase in this disease, but with the recently acquired accuracy in diagnosis, the final extermination of this loathsome disease should not be long deferred.

## ANTHRAX.

Eleven cases of suspected anthrax in animals were reported last year. After examination only six proved to be cases. One of these occurred in a bull at a public sale of shorthorns. In two cases the infected carcasses were sent to the abattoir, with a view to their being passed for food; one of these was from an outside farm, the other from a city farm. The other three cases died on farms in the city and were at once reported to the Local Authority. Three of the cases occurred on a farm where there was no record of any previous case of anthrax, the animals being fed on one maker's cake, but examination of the cake proved negative. The fact that two of the infected carcasses were found to have been sent to the abattoir, with a view to their being passed for human food, shows the necessity for constant expert inspection of all meat that is to be used for human food.

## FOOT AND MOUTH DISEASE.

There was no case or suspected case of Foot and Mouth Disease in the city during 1916, and only one outbreak in the country. Seeing that in England there were 56 outbreaks affecting 557 cattle, 140 pigs and 5 sheep, and necessitating the slaughter of 1,430 other animals in the preceding year, the country may be congratulated on the practical suppression of this very subtle contagious disease.

## RABIES.

Fortunately the country continues free from this disease. Two cases of vicious dogs were submitted here, but in neither was there any symptom really suspicious of Rabies. That fact that in the preceding year one case of Rabies was imported shows the necessity for retaining the present measures against the introduction of this fatal disease.

## SWINE FEVER.

During the year 134 cases of sick or dead pigs have been submitted to me for inspection. In addition 22 cases have been dealt with by one of the whole time Veterinary Inspectors of the Board of Agriculture, who certified 16 of them to be Swine Fever cases and the others not. Of the 134 cases submitted to me, 36 presented symptoms more or less suspicious of Swine Fever, and of these 20 ultimately proved to be cases.

During the year the system of passive immunisation by serum against Swine Fever inaugurated by the Board of Agriculture in the preceding year has continued in force. The initial success noted in that year has not only been maintained but surpassed. Indeed, in my experience, in properly selected herds, where all clinically affected pigs have been slaughtered, and an adequate system of isolation prescribed, the serum immunisation has proved an unqualified success, and I am satisfied that if this system were to be supplemented by a modification in the common law requiring all pigs sold to be guaranteed by their vendors as free from Swine Fever at the time of sale, the prevalence of the disease would soon show such a marked diminution as to foreshadow the successful eradication of Swine Fever.

## PARASITIC MANGE IN HORSES.

There were 16 horses under detention for Mange at the beginning of 1916, and 45 horses were certified as affected during the year. Of the 16 first mentioned 11 made good recoveries, and the other 5, being old and worn-out horses, and not worth prolonged treatment, were slaughtered by their owners. Of the 45 certified during the year 3 old worn-out horses have been slaughtered, 37 have been cured, and 5 were under detention at the end of the year.

The number of 45 horses affected during the year compares very favourably with the 111 affected during the preceding year. The lessened movement of horses for army purposes during 1916, as compared with 1915, is no doubt largely responsible for the diminution in the number of cases.

The Mange Order has proved a most valuable measure, and but for this Order the amount of equine suffering and horse owners' loss would have been very much greater.

## SHEEP SCAB.

No case or suspected case of this disease has been reported in the city during the year.

## TUBERCULOSIS.

As previously reported, the Tuberculosis Order for dealing with Bovine Tuberculosis has been suspended during the period of the war. At present only such cases as come under the Birmingham Dairy Regulations can be dealt with.

## JOHNE'S DISEASE.

Perhaps a note on this very prevalent, incurable, contagious disease, though it is not included in the list of the Board of Agriculture's scheduled contagious diseases, may not be inappropriate. This disease, although its true character has only been recognised for the last ten years, is now known to be widely distributed, and the number of Johne-affected animals that come into the Birmingham abattoirs is much larger than is generally known. Indeed, as much Johne-affected meat is condemned as unfit for human food in Birmingham to-day as is condemned from being affected with Tuberculosis.

If it were more generally known that recovery from Johne's disease (in the light of our present knowledge) is hopeless, that the longer Johne-infected cattle are kept alive the less is their value, until they are finally valueless, and that while they live they spread the infection of the disease, stock owners would speedily limit their expenses and cut their losses from Johne by immediately having their affected animals slaughtered.

## DISINFECTION.

The articles disinfected after infectious diseases were as follows:—Beds, 3,659; mattresses, 2,039; counterpanes, 2,075; blankets, 3,655; sheets, 1,864; bolsters, 1,958; pillows, 6,315; garments, 3,025; boots, 376; carpets, 402; and sundries, 1,453.

## CITY HOSPITALS.

The following statement shows the number of patients\* treated last year in the City Hospitals:—

		Scarlet Fever.		Diphtheria.
Under treatment at beginning of year	...	311	...	76
Admitted during the year	...	1,329	...	713
Discharged during the year	...	1,460	...	638
Died during the year	...	22	...	60
Remaining at end of year	...	158	...	91

\* In a certain number of cases the diagnosis was revised in hospital.

## REPORT ON LITTLE BROMWICH HOSPITAL.

(By DR. JAMES O'SHEA, ACTING MEDICAL SUPERINTENDENT.)

## SCARLET FEVER.

Number remaining in hospital December 31st, 1915	...	...	278
Number admitted during the year 1916	...	...	1,233
Total under treatment during the year	...	...	1,511
Discharged during the year 1916	...	...	1,341
Died during the year 1916	...	...	21
Remaining in hospital December 31st, 1916	...	...	149
			<hr/> 1,511

The number of deaths amongst the patients admitted during the year was 17, giving a death-rate of 1·4, as against 2·4 for the previous year. Five of these cases suffered on admission from Diphtheria, 2 from Broncho-pneumonia, and 1 from Congenital Specific disease, while 1 contracted Diphtheria in hospital. If these be deducted, the death-rate becomes ·57 per cent., as against ·81 per cent. last year.

140 cases had Diphtheria during their stay in hospital, and 48 of these cases were definitely Diphtheria on admission.

#### DIPHTHERIA.

Number remaining in hospital December 31st, 1915	...	...	...	...	75
Number admitted during the year 1916	...	...	...	...	806
Total under treatment during the year	...	...	...	...	881
Discharged during the year 1916	...	...	...	...	734
Died during the year 1916	...	...	...	...	57
Remaining in hospital December 31st, 1916	...	...	...	...	90
					881

Of the 806 cases admitted 63 died, giving a death-rate of 8·8, as against 8·2 last year. Twenty-three of these were laryngeal cases.

Deducting 15 cases which died within forty-eight hours of admission, the death-rate becomes 6·7.

Tracheotomy was performed in 33 cases, of which 16 died.

Four cases were admitted with tracheotomy wounds.

#### ANALYSIS OF CASES.

Forty-five of the cases admitted were not suffering from diphtheria.

There were 91 laryngeal cases.

In 371 cases the membrane was limited to the fauces; the remaining cases had membrane also on the palate or naso-pharynx.

#### PARALYSIS.

There were 171 cases of paralysis :—68 palatal, 21 cardiac, 12 oculo motor, and the remainder mixed.

#### MILITARY PATIENTS.

One hundred and fifty military patients have been treated during the year :—55 scarlet fever, 38 measles 54 diphtheria, and 3 chicken pox.

#### CONDITION OF PATIENTS.

There were a number of patients with bad teeth and dirty heads.

#### INFECTION AMONG STAFF.

5 Nurses off duty with scarlet fever	...	...	...	...	228 days.
1 Maid off duty with scarlet fever	...	...	...	...	70 "
16 Nurses off duty with diphtheria	...	...	...	...	934 "
5 Maids off duty with diphtheria	...	...	...	...	204 "
2 Nurses off duty with measles	...	...	...	...	38 "

This is equal to four members of the staff continuously off duty on account of infectious diseases contracted at the hospital.

#### LODGE ROAD AND WEST HEATH HOSPITALS.

Owing to the small number of Scarlet Fever cases occurring during the year, it was not necessary to re-open Lodge Road Hospital, which was closed in October, 1915. The hospital is, however, being kept in efficient condition so that it could be used again at any moment if the necessity arose.

The West Heath Hospital was used for cases residing on that side of the city who could conveniently be removed there. The number admitted during the year was 97.



## GENERAL SANITARY INSPECTORS' WORK.

## No. of visits and revisits paid :—

Measles (visited by Inspectors) ... ..	2,944
Other Infectious Diseases ... ..	7,644
Nuisances or Complaints ... ..	24,597
Work ordered ... ..	28,524
Work in progress ... ..	10,682
Inspection of Dirty Courts ... ..	4,496
Systematic Court-yard Inspection ... ..	2,172
Manure Receptacles ... ..	3,355
Smoke or Water Tests ... ..	744
Offensive Trades ... ..	76
Ice Cream Vendors ... ..	778
Calls on Owners or Agents ... ..	3,322
Billets for Soldiers ... ..	241
Other Purposes ... ..	4,979
Tents, Vans and Sheds ... ..	144

## Nuisances, etc., reported :—

Houses to be disinfected after Scarlet Fever ... ..	1,685
"    "    "    Diphtheria ... ..	809
"    "    "    Typhoid Fever ... ..	43
Repairs to Houses ... ..	8,846
Houses to be cleansed ... ..	1,425
Houses to be provided with better ventilation ... ..	89
Houses to be provided with separate water supply ... ..	34
Cases of overcrowding to be remedied ... ..	85
Houses to be provided with Damp Courses ... ..	268
Water to be removed from Cellars ... ..	680
Spouting to be repaired or disconnected ... ..	3,370
Rain Water Cisterns to be disconnected or abolished ... ..	141
Ashpit Privies to be converted to Water Closets ... ..	26
Pan Privies to be converted to Water Closets ... ..	28
Privies and Closets to be limewashed ... ..	575
Water Closets to be repaired or reconstructed ... ..	3,353
Additional Water Closets to be provided ... ..	35
Ashplaces to be repaired or limewashed ... ..	880
Ash Tubs to be provided ... ..	3,258
Soilpipes to be repaired or removed ... ..	40
Urinals to be put in order or closed ... ..	26
Drains to be relaid or repaired ... ..	1,233
Drains to be opened and cleansed ... ..	7,277
Gully Traps to be provided ... ..	300
Interception Traps to be provided on main drains ... ..	46
Premises to be supplied with additional drains ... ..	136
Drains in cellars to be disconnected or abolished ... ..	43
Sink Bend Pipes to be repaired or affixed ... ..	557
Sanitary Sinks to be provided ... ..	354
Yards to be paved ... ..	120
Yards to be repaired ... ..	792
Courts or Yards to be cleansed by Tenants... ..	389
Wash Houses to be repaired or limewashed ... ..	736
Keeping of fowls to be discontinued ... ..	132
Nuisances from swine and swine styes abated ... ..	30
Accumulations of rubbish, manure, etc., to be removed ... ..	638
Manure receptacles to be provided or repaired ... ..	199
Dangerous premises to be reported to City Surveyor's Department ... ..	273
Defective Fittings to be reported to Water Dept....	1,281
Other Work to be done ... ..	65

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Total ... .. 40,297

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## SANITARY NOTICES ISSUED.

Preliminary notices	...	...	...	...	...	11,252
Reminders...	...	...	...	...	...	1,450
Statutory notices...	...	...	...	...	...	680

## SPECIAL W.C. INSPECTORS.

No. of houses visited	...	...	...	...	...	131,417
No. of ashpits	...	...	...	...	...	289
No. of houses with good ashbins	...	...	...	...	...	40,338
No. of houses with bad ashbins	...	...	...	...	...	946
W.C.'s locked up	...	...	...	...	...	27,924
W.C.'s not locked	...	...	...	...	...	32,409
W.C.'s found obstructed	...	...	...	...	...	1,012
W.C.'s found dirty	...	...	...	...	...	46
Defective spouting reported	...	...	...	...	...	74
Obstructed drains reported	...	...	...	...	...	297
Defective W.C.'s reported	...	...	...	...	...	272
No. defective ashbins reported	...	...	...	...	...	94
Other defects reported	...	...	...	...	...	201

## WORK DONE BY COURT CLEANSING STAFF.

Courts cleansed by staff and paid for	...	...	...	...	...	11,650
Courts cleansed free of charge	...	...	...	...	...	4,550
Houses stripped	...	...	...	...	...	87
Out-houses limewashed	...	...	...	...	...	144
W.C.'s examined	...	...	...	...	...	77,073
W.C.'s opened	...	...	...	...	...	8,858
W.C.'s cleansed	...	...	...	...	...	60,795
Pan privies limewashed	...	...	...	...	...	117
Ash places limewashed	...	...	...	...	...	25,303
Drain traps cleansed	...	...	...	...	...	127,629
Drains freed from obstruction	...	...	...	...	...	5,892

## HOUSING.

This is the most urgent of the reforms which need immediate attention. Unfortunately it is quite impossible to get the ordinary work done under the Housing Acts, on account of the small amount of available labour being required on new or repair work on existing dwellings. The tabular statements of work done are continued, however, as in former years. It will be seen that few houses have been represented, and that very little work has been done directly under the Inspection of Dwellings Order.

YEAR.	Represented.		Closing Orders.		Rendered Habitable.		Demolished.		Demolition Orders.	
	Houses.	Properties.	Houses.	Properties.	Houses.	Properties.	Houses.	Properties.	Houses.	Properties.
1903...	304	85	65	19	155	32	34	19	51	15
1904...	1119	143	233	31	242	37	127	33	36	6
1905...	793	98	327	41	330	38	230	43	61	7
1906...	596	87	199	25	370	49	117	26	143	13
1907...	806	120	679	102	262	41	422	64	157	24
1908...	650	79	184	24	494	69	257	43	164	30
1909...	521	70	220	34	381	54	216	45	54	9
1910...	609	72	173	27	277	46	291	59	41	10
1911...	278	49	360	51	202	30	163	37	71	11
1912...	926	135	727	106	300	44	349	36	209	37
1913...	1166	227	1261	234	237	44	398	83	553	91
1914...	58	17	252	52	322	64	478	115	587	120
1915...	63	19	75	22	152	33	340	71	107	27
1916...	4	3	1	1	113	20	136	35	8	4
Total	7893	1204	4756	769	3837	601	3558	709	2242	404

## HOUSING (INSPECTION OF DISTRICT) REGULATIONS, 1910.

(1) Dwellings inspected under above regulations ... ..	306
(2) Number of such dwellings unfit for habitation ... ..	2
(3) Number of houses in which representations were made ... ..	4
(4) Number in which closing orders were made ... ..	1
(5) Number in which defects were remedied without closing orders ... ..	292
(6) Number made fit after closing order ... ..	113
(7) General character of defects found (see page 52).	
Number of new dwelling houses completed during 1916 ... ..	487

## COMMON LODGING HOUSES.

Two new lodging houses were registered during the year and four were closed, leaving 37 such houses in the city, having accommodation for 2,301 lodgers. The work done in connection with them is shown below:—

Visits by day ... ..	2,111
Visits by night ... ..	187
Work ordered:—	
Windows to be opened ... ..	68
Floors to be cleansed ... ..	60
Ventilators to be provided ... ..	18
Walls, floors, roofs, etc., to be repaired ... ..	192
Water-closets to be provided ... ..	1
Water-closets to be repaired ... ..	8
Water-closets to be cleansed ... ..	6
Ashbins to be provided ... ..	6
Drains or yards to be repaired ... ..	3
Fire buckets to be provided ... ..	4
Fire escapes to be provided or improved ... ..	5
Houses to be limewashed ... ..	77
Removal of rubbish ... ..	17
Bed linen to be cleansed (sets) ... ..	91
Verminous bedding to be cleansed ... ..	36
New beds to be provided ... ..	50
Summonses... ..	0

## HOUSES LET IN LODGINGS.

The work done in regard to this very objectionable class of houses is indicated in the next statement:—

Houses on the register ... ..	627
Lodgers allowed ... ..	3,500
Visits paid to registered houses ... ..	5,385
Overcrowding ... ..	29
Improperly mixing the sexes ... ..	9
Houses requiring repair ... ..	54
Rubbish to be removed ... ..	10
Rooms not swept daily ... ..	381
Passages not swept ... ..	121
Stairs not swept ... ..	155
Bedding to be cleansed ... ..	70
Houses to be cleansed ... ..	182
Drains, etc., obstructed ... ..	48
Drains to be repaired ... ..	2
Water-closets to be repaired ... ..	1
Ash-tubs to be provided ... ..	7
Windows not opened ... ..	396
Lighting and ventilation to be improved ... ..	31

## CANAL BOATS.

The following is a copy of the report made in accordance with the provisions of the Canal Boats Acts:—

## PUBLIC HEALTH AND HOUSING DEPARTMENT.

THE COUNCIL HOUSE, BIRMINGHAM,

31st January, 1917.

Gentlemen,

In compliance with Section 3 of the Canal Boats Act, 1884, I beg to present to you the annual report of the work done during the year 1916 under the Canal Boats Acts, 1887 and 1884, and the regulations made thereunder by the Local Government Board.

Owing to the absence of Inspector W. G. E. Childs on Military Service, the work has been done during the whole of the year by Inspector H. Howes, who has also acted as Inspector of Common Lodging Houses in the city of Birmingham. Inspector Howes' salary for the combined appointment has been 35s. per week, with uniform.

## INSPECTION OF BOATS.

During the year 1916 1,072 boats were inspected. These boats were registered to carry 3,647 persons, and were found to be occupied by 1,302 men, 785 women, and 957 children, in all equivalent to 2,565½ adults.

The number of inspections during the quarters of the year is shown thus:—

First quarter	...	...	...	...	...	212 boats.
Second quarter	...	...	...	...	...	256 „
Third quarter	...	...	...	...	...	214 „
Fourth quarter	...	...	...	...	...	390 „
Total	...	...	...	...	...	1,072 „

The following table shows the annual number of inspections for the last five years, with the number of adults the boats were registered to carry:—

Year.	No. of Boats Inspected.	Registered to carry (adults).
1912 ...	1,120	3,529
1913 ...	1,080	3,314
1914 ...	1,048	3,234½
1915 ...	802	2,551½
1916 ...	1,072	3,647

Of the 1,072 boats inspected 1,007, or 93·9%, were found to be in good condition, and complying with the Acts and Regulations, while on 65, or 6·06%, contraventions of various kinds were found.

The number of contraventions found was 139, and were distributed as follows:—

Boats found with 1 contravention	each	22	total	22
„ „ „ 2 contraventions	„	17	„	34
„ „ „ 3 „	„	21	„	63
„ „ „ 4 „	„	5	„	20
		65		139

A complaint note was served on the owner in every case.

Certificates were returned certifying that 110 complaints had been remedied during the year.

The following table shows the number and character of contraventions found, and also of those remedied during the year under review:—

Contraventions referring to	Outstanding and brought forward from 1915.	Found during 1916.	Remedied during 1916.	Carried forward to be dealt with in 1917.
Registration	...	2	2	—
Certificates not produced	...	12	9	3
Non-identification of boat with certificate	...	3	2	1
Marking of boat	...	31	25	7
Overcrowding	...	4	3	1
Separation of sexes	...	4	4	—
Repairs to cabins	...	25	17	12
Painting of cabins	...	45	32	18
Cleanliness of cabins	...	1	1	—
Leaking cabins	...	13	6	7
	11	139	101	49

There has, on the whole, been longer delay in remedying defects found during this year, but it has been recognised that in the main this has been due to scarcity of labour, and due allowance has been made. This also accounts for the larger number of complaints left over to be dealt with during the coming year. Owners have in most cases complied to the best of their ability, but in two cases it was found necessary to take legal proceedings.

(1) The Boat "Cyril," No. 494, Berkhamsted, was met with in Birmingham on August 10th, and a complaint note was sent to the owner on August 11th, stating that the "cabin required repairing, painting and marking." The certificate was not returned, and a reminding letter was sent to the owner on September 21st. No reply was received to this, and the boat was met with working through Birmingham on September 27th, and again on November 1st, the complaints not having been remedied. The Magistrates inflicted a fine of 20s. on the owner.

(2) The Boat "Marion," No. 223, Brierley Hill, was inspected in Birmingham on February 3rd, 1916, and notices served on the owner on February 4th, stating that the "cabin leaked and required repairing and re-painting." A reminding notice was also sent to the owner on June 5th. On September 12th the boat was again met with in Birmingham, no repairs having been done. A fine of 20s. was imposed in this case on the owner.

#### INFECTIOUS DISEASE.

I am glad to be able to report that for the third year in succession no case of infectious disease has been notified, or found, on the boats in the city.

#### REGISTRATION OF BOATS.

During the year 10 boats have been registered in Birmingham, and 9 registrations have been cancelled, leaving an increase of 1 in the number of boats on the register.

The registrations are made up as follows:—

New Motor Boats	...	...	...	...	...	...	2
New Ordinary Boats	...	...	...	...	...	...	2
Re-registration of Ordinary Boats	...	...	...	...	...	...	6
Total registrations	...	...	...	...	...	...	10

Of the 6 re-registrations 5 were necessitated by change of ownership and 1 by alteration of the name of the boat. Four of these boats were previously registered at Birmingham, 1 at Uxbridge, and 1 at Droitwich. In both of the latter cases the Authority concerned was advised of the re-registration of the boats in Birmingham.

#### BOATS ON THE REGISTER.

The number of boats on the register on December 31st, 1916, was 465, and for the five preceding years the numbers have been as follows:—

December 31, 1911.—Boats on Register	...	...	...	...	419
" 1912	"	...	...	...	433
" 1913	"	...	...	...	448
" 1914	"	...	...	...	457
" 1915	"	...	...	...	464

There are now 20 motor boats on the register, and these are all of the same type, viz., driven by crude oil internal combustion engines, with the cabin immediately astern of the engine-room.

The dates of registration of these are:—

Nos. 1242 and 1249	...	...	...	...	...	Registered in 1911.
Nos. 1256, 1275 and 1276	...	...	...	...	...	Registered in 1912.
Nos. 1286, 1290, 1299, 1301 and 1304	...	...	...	...	...	Registered in 1913.
Nos. 1308, 1310, 1314, 1316, 1320 and 1325	...	...	...	...	...	Registered in 1914.
Nos. 1335 and 1342	...	...	...	...	...	Registered in 1915.
Nos. 1348 and 1350	...	...	...	...	...	Registered in 1916.

I am, Gentlemen, your obedient servant,

T. W. BEAZELEY, M.B., D.P.H.,  
*Assistant Medical Officer of Health.*

#### MILK SHOPS AND DAIRIES.

No. of milk shops on register	...	...	...	...	4,265
No. of dairies on register	...	...	...	...	10
No. of purveyors on register	...	...	...	...	430
Visits to milk shops	...	...	...	...	4,810
Visits to dairies	...	...	...	...	17
Visits to purveyors	...	...	...	...	155
Visits to railway stations	...	...	...	...	19

Milk vessels examined	...	...	...	...	11,169
Milk shops limewashed	...	...	...	...	69
Sanitary defects remedied	...	...	...	...	76
Cases of infectious disease dealt with	...	...	...	...	31
New milk shops registered	...	...	...	...	432
New purveyors registered	...	...	...	...	19

## MILK AND CREAM REGULATIONS.

The total number of samples taken during the year was 23.

1. *Milk and Cream not sold as Preserved Cream.*

	(a) No. of Samples examined for the presence of a preservative.				(b) No. in which a Preservative was reported to be present.	
Milk ...	...	...	...	—	...	—
Cream ...	...	...	...	6	...	4

In the following table particulars are given relating to the 4 samples of cream not sold as preserved cream in which preservatives were reported to be present.

Number.	Results of Analysis.			Remarks.	
	Milk Fat.		Boric Acid.		
A/4070	...	60%	...	0.21%	No declaratory label was affixed to receptacle. Vendor cautioned by letter.
C/212	...	35%	...	0.4%	No declaratory label was affixed to receptacle. Vendor cautioned by letter.
A/4363	...	56%	...	0.5%	No declaratory label was affixed to receptacle. No action taken; further sample genuine.
A/4365	...	55%	...	0.3%	No declaratory label was affixed to receptacle. No action taken; further sample genuine.

2. *Cream sold as Preserved Cream.*

(a) Instances in which samples have been submitted for analysis to ascertain if the statements on the label as to preservatives were correct.

(1) Correct statements made	...	...	...	...	...	16
(2) Statements incorrect	...	...	...	...	...	1
Total	...	...	...	...	...	17

(b) Determinations made of milk fat in cream sold as preserved cream.

(1) Above 35 per cent.	...	...	...	...	...	17
(2) Below 35 per cent.	...	...	...	...	...	—
Total	...	...	...	...	...	17

(c) Instances where (apart from analysis) the requirements as to labelling or declaration of preserved cream in Article V (1), and the proviso in Article V (2) of the regulations have not been observed.

No case was brought to notice of any infringement of Article V (1) or the proviso in Article V (2) of the regulations.

(d) In the following table particulars are given relating to the one sample of cream sold as preserved cream in regard to which incorrect statements were made on the declaratory label, and also instances where the requirements as to labelling of preserved cream in accordance with Article V (2) were not strictly complied with.

Number.	Results of Analysis.			Remarks.	
	Milk Fat.		Boric Acid.		
C/210	...	over 35%	...	0.67%	The amount of boric acid present was 0.17% in excess of the stated proportion. Vendor cautioned by letter.
C/374	...	45%	...	0.7%	The amount of boric acid present was 0.2% in excess of the stated proportion. Vendor cautioned by letter.
C/375	...	54%	...	0.4%	The printing on the declaratory label was not of standard size and was marked "Preserved Cream." No action taken; further sample genuine.
A/4366	...	47%	...	0.4%	Declaratory label of standard size affixed, but receptacle marked "Thick Rich Cream." Vendor cautioned by letter.

Number.	Article.	Percentage of Boric Acid indicated in Statutory Label.			Percentage of Boric Acid found on analysis.		
A 3959	Cream ... ..	No label			None present		
A 3960	Preserved Cream ... ..	0.5%			0.33%		
A 3961	Preserved Cream ... ..	0.5%			0.41%		
A 4068	Preserved Cream ... ..	0.5%			0.15%		
A 4069	Preserved Cream ... ..	0.5%			0.40%		
A 4070	Preserved Cream ... ..	0.5%			0.21%		
C/33	Cream ... ..	Labelled Pure Rich			None present		
C/46	Cream ... ..	Labelled Pure Thick			None present		
C/47	Preserved Cream ... ..	0.5%			0.31%		
C/210	Preserved Cream ... ..	0.5%			0.67%		
C/211	Preserved Cream ... ..	0.5%			0.45%		
C/212	Cream ... ..	No label			0.4%		
C/374	Preserved Cream ... ..	0.5%			0.7%		
C/375	Preserved Cream ... ..	0.5%			0.4%		
C/376	Preserved Cream ... ..	0.5%			0.30%		
C/377	Preserved Cream ... ..	0.5%			0.45%		
A/4363	Cream ... ..	No label			0.5%		
A/4364	Preserved Cream ... ..	0.5%			0.4%		
A/4365	Cream ... ..	No label			0.3%		
A/4366	Preserved Cream ... ..	0.5%			0.4%		
A/4405	Preserved Cream ... ..	0.5%			0.55%		
A/4406	Preserved Cream ... ..	0.5%			0.45%		
C/533	Preserved Cream ... ..	0.5%			0.4%		

3. There was no evidence of the addition of any thickening substance either to cream or preserved cream.

The above is a complete list of the samples of cream and preserved cream referred to, and the percentage of preservative found to be present as compared with that indicated in the Statutory label (where affixed) in respect of each sample is also set out.

## INSPECTION OF MEAT AND FISH.

(RETURN SUPPLIED BY MR. T. H. WILKINS, SUPERINTENDENT OF MARKETS.)

Six inspectors were engaged in visiting the public and large numbers of private slaughter houses, the remaining two being away on military service. For this purpose they made 10,825 visits in addition to the constant work carried on at the public slaughter houses and wholesale and retail markets.

The amount of food seized and surrendered was as follows :—

### *Bad Meat.*

Voluntarily surrendered	...	...	...	...	...	3,973 lots.
Seized by Inspectors	...	...	...	...	...	1 "
Weight destroyed	...	...	...	...	...	277 tons.
Persons prosecuted	...	...	...	...	...	0
Penalties inflicted	...	...	...	...	...	0

### *Bad Fish, Poultry, etc.*

Voluntarily surrendered	...	...	...	...	...	1,178 lots.
Seized ...	...	...	...	...	...	2 "
Weight destroyed	...	...	...	...	...	113 tons.
Persons prosecuted	...	...	...	...	...	1
Penalties inflicted	...	...	...	...	...	£10

### *Bad Fruit, etc.*

Voluntarily surrendered	...	...	...	...	...	128 lots.
Seized ...	...	...	...	...	...	2 "
Weight destroyed	...	...	...	...	...	44 tons.
Persons prosecuted	...	...	...	...	...	2 "
Penalties inflicted	...	...	...	...	...	£2



# FACTORIES AND WORKSHOPS.

## I. INSPECTION OF FACTORIES, WORKSHOPS AND WORKPLACES.

(Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.)

PREMISES. (1)	Number of		
	Inspections. (2)	Written Notices. (3)	Prosecutions. (4)
Factories (including Factory Laundries)	1333	41	—
Workshops (including Workshop Laundries) ... ..	9101	175	—
Workplaces (other than Outworkers' premises included in Part 3 of this Report) ... ..	479	26	—
Total ... ..	10913	242	—
Revisits paid ... ..	2638	—	—

## II.—DEFECTS FOUND IN FACTORIES, WORKSHOPS AND WORKPLACES.

PARTICULARS. (1)	Number of Defects.			Number of Prosecutions (5)
	Found. (2)	Remedied. (3)	Referred to H. M. Inspector. (4)	
Nuisances under the Public Health Acts :—				
Want of cleanliness ... ..	1494	1453	—	—
Want of ventilation ... ..	23	23	—	—
Overcrowding ... ..	2	2	—	—
Want of drainage of floors ... ..	5	4	—	—
Other nuisances ... ..	506	504	—	—
Sanitary accommodation—				
Insufficient ... ..	109	105	—	—
Unsuitable or defective ... ..	1066	1050	—	—
Not separate for sexes ... ..	25	25	—	—
Offences under the Factory and Workshop Act :—				
Illegal occupation of underground bakehouse (s. 101) ... ..	—	—	—	—
Breach of special sanitary requirements for bakehouses (ss. 97 to 100) ...	—	—	—	—
Other offences (excluding offences relating to outwork which are included in Part 3 of this Report) ...	—	—	—	—
Total ... ..	3230	3166	—	—

[illegible]

## IV.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year ... .. 4,457

## V.—OTHER MATTERS.

	Number.
Matters notified to H.M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Acts (s.133, 1901)	22
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Acts (s. 5, 1901) ... ..	193
Other ... ..	174
Underground bakehouses (s. 101) :—	2
Certificates granted during the year	—
In use at the end of the year	7

## HEALTH VISITORS' WORK.

(REPORT BY BLANCHE GARDINER, B.A., SUPERINTENDENT OF HEALTH VISITORS.)

The annual increase in the number of Visitors (Health, Infant and Tuberculosis) was maintained in 1916, there being 51 that year (whereas in 1915 there were 43), the 8 additional ones being Infant Visitors, needed for the various municipal Maternity and Infant Welfare Centres.

The Health Visitors' work is to a large extent indicated by the following table:—

## PRIMARY VISITS :—

Systematic ... ..	2,064
*Births ... ..	8,808
*Ophthalmia Neonatorum ... ..	202
Diarrhœa Deaths ... ..	260
*Measles ... ..	8,252
*German Measles ... ..	4,145
Chicken Pox ... ..	1,954
Whooping Cough ... ..	3,533
Mumps ... ..	1,408
Vernix ... ..	235
Ringworm ... ..	20
Scabies ... ..	198
Impetigo ... ..	159
Blight ... ..	96
Unclassified School Cases ... ..	3,717
Schools ... ..	474
Reported Overcrowding ... ..	16
Country Holiday Inspections ... ..	12
Health Talks ... ..	6
*Other Visits ... ..	12,528
Revisits ... ..	10,236
Useless Visits (i.e., out, removed, etc.) ... ..	8,102
Total ... ..	66,425

\* See explanatory notes.

While 8,808 primary visits *re* Births were made by the Health Visitors, 8,143 primary visits were paid by the Infant Visitors, making a total of 16,951. Also the Health Visitors visited 202 cases of Ophthalmia Neonatorum and the Infant Visitors 131 cases of this disease, giving a total of 333. The larger number of Measles cases, and the much larger number of German Measles cases, visited in 1916 than in the previous year, was largely due to the fact that the Public Health (Measles and German Measles) Regulations, 1915, came into operation on January 1st, 1916.

The Health Visitors visited also this year and reported upon the condition of all the houses of persons applying at the Council House for munition lodgers.

In connection with cases of Infantile diarrhœa, and deaths from this disease, the Health Visitors and Infant Visitors made some special inquiries as to the temperature of the homes where these occurred, by means of thermometers (maximum and minimum), whose records were noted by them every 24 hours.

474 schools were visited by the Health Visitors, more especially in connection with certain infectious diseases (Measles, Chicken-pox, Whooping Cough, Scabies, etc.), but where verminous cases were reported by the schools, etc., to the Health Department, then the homes of these were visited, and their conditions investigated.

In connection with a Motherhood Exhibition, held for three days in the Town Hall, in May, 1916, the Health Department was represented by an Infant Welfare Stall, and by two small rooms, specially built, and furnished, to represent the living room of a working class home. One was the insanitary, dirty, stuffy, neglected room in which no infant could be expected to thrive; the other a clean, airy, tidy one, in which a baby should flourish. The Health Visitors were in constant attendance (in turns), talking and explaining the exhibits to the ever-changing groups that crowded round the two rooms.

Finally, the whole staff of visitors have worked energetically and uncomplainingly in face of the many unlooked-for difficulties attendant upon the long-continued war.

**TABLE I.**  
*Vital Statistics of Whole District during 1916 and previous Years.*

Year.	Population estimated to middle of each year.	Births.			Total Deaths Registered in the District.		Transferable Deaths.		NET DEATHS BELONGING TO THE DISTRICT.			
		Uncorrected Number.	Nett.		Number.	Rate.	Non-residents registered in the District.	Residents not registered in the District.	Under 1 year of Age.		At all Ages.	
			Number	Rate.					Number.	Rate per 1,000 Net Births.	Number.	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1901	760,989	?	23,866	31.4	14,089	18.6	?	?	4,205	176	13,290	17.5
1902	768,757	?	24,246	31.2	12,973	16.7	?	?	3,503	144	12,650	16.3
1903	776,604	?	23,956	30.9	12,433	16.0	?	?	3,525	147	12,224	15.8
1904	784,532	?	24,260	31.0	14,047	17.9	?	?	4,346	179	13,882	17.7
1905	792,540	?	22,939	29.0	12,132	15.3	?	?	3,224	141	11,948	15.1
1906	800,631	?	23,484	29.4	12,983	16.2	?	?	3,682	157	12,737	15.9
1907	808,803	?	23,233	28.8	12,567	15.6	?	?	3,084	133	12,356	15.3
1908	817,060	?	23,986	29.1	12,782	15.5	?	?	3,124	130	12,596	15.3
1909	825,400	?	22,555	27.4	12,573	15.3	?	?	2,727	121	12,398	15.1
1910	833,826	?	22,288	26.8	11,200	13.5	?	?	2,570	115	11,001	13.2
1911	842,337	?	21,975	26.1	12,760	15.2	?	?	3,298	150	12,623	15.0
1912	850,947	22,186	22,168	26.1	12,131	14.3	338	212	2,470	111	12,005	14.1
1913	859,644	23,858	23,812	27.3	13,116	15.0	362	208	3,070	129	12,962	14.9
1914	862,534	23,268	23,207	26.4	13,115	14.9	346	257	2,839	122	13,026	14.8
1915	891,234	21,217	21,187	23.8	12,907	14.5	418*	357	2,490	118	12,816	14.4
Averages for years 1901-1915	819,723	?	23,144	28.3	12,787	15.6	?	?	3,210	139	12,568	15.3
1916	895,678	20,663	20,618	23.1	12,268	13.7	603*	416	2,142	104	12,081	13.5

Rates in columns 5, 7, and 13 calculated per 1,000 of estimated population.

Total population at all ages at Census of 1911, 840,262.      Area of District in acres, 43,537.      Number of inhabited buildings, 177,030.

Average Number of Persons per house, 4.7.

\* Including all members of the Military and Naval Forces, whether residents of Birmingham or not.

TABLE II.

*Causes of, and Ages at, Death during the Year ending December 30th, 1916.*

CAUSE OF DEATH.	AGES.																	Males	Fe- males.	Per- sons.
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85-				
1.—GENERAL DISEASES.																				
Enteric Fever ... ..	—	—	—	—	—	1	—	—	—	2	1	1	—	—	—	—	3	2	5	
Typhus Fever ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Relapsing Fever ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Malaria ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Smallpox—																				
(a) Vaccinated ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
(b) Not Vaccinated ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
(c) Doubtful ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Measles ... ..	16	45	16	9	2	11	—	1	1	—	—	—	—	—	—	—	60	41	101	
German Measles ... ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1	
Scarlet Fever ... ..	2	3	5	4	3	7	2	—	—	—	—	—	—	—	—	—	14	12	26	
Whooping Cough ... ..	162	130	47	21	8	10	—	—	—	—	—	—	—	—	—	—	158	220	378	
Diphtheria ... ..	6	15	13	19	10	41	7	2	—	1	2	—	—	—	—	—	58	58	116	
Croup ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Influenza ... ..	1	2	—	—	—	2	1	1	1	9	14	20	27	34	27	7	80	66	146	
Miliary Fever ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Asiatic Cholera ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Cholera Nostras... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Dysentery ... ..	—	1	—	—	—	—	—	—	—	—	—	3	1	1	—	1	1	6	7	
Plague ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Yellow Fever ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Leprosy ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Erysipelas ... ..	2	—	—	—	—	1	—	1	1	2	—	4	3	4	5	1	9	15	24	
Other Epidemic Diseases	—	2	—	2	—	1	—	—	—	—	—	—	—	—	—	—	1	4	5	
Pyæmia, Septicæmia ... ..	1	2	—	—	1	—	—	—	—	4	1	1	3	1	—	—	10	4	14	
Glanders ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Anthrax (Splenic Fever)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Rabies ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Tetanus ... ..	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	—	1	
Mycoses ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Pellagra ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Beri-Beri... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Pul. Tuberculosis (not acute)... ..	1	9	2	3	2	20	19	55	101	219	280	192	97	25	6	—	647	384	1031	
Acute Phthisis ... ..	1	—	—	2	1	2	2	3	7	15	15	12	4	1	—	—	39	26	65	
Acute Miliary Tuberculosis	—	1	1	—	—	2	1	2	—	—	2	1	1	—	—	—	6	5	11	
Tuberculous Meningitis	15	21	17	11	9	12	5	1	2	2	—	—	—	—	—	—	45	50	95	
Tuberculosis (Periton. Intest.)	18	11	4	3	3	3	3	4	2	3	2	1	1	—	—	—	33	25	58	
Tuberculosis (Spinal Column)	—	—	—	—	—	—	5	1	—	4	1	2	—	—	—	—	7	6	13	
Tuberculosis (Joints) ... ..	—	—	—	—	—	2	—	—	—	—	1	1	—	—	—	—	3	1	4	
Tuberculosis (other organs)	2	—	—	—	1	—	—	2	—	2	3	—	1	—	—	—	4	7	11	
Disseminated Tuberculosis	3	5	3	2	—	6	5	1	2	3	2	2	2	—	—	—	21	15	36	
Rickets, Softening of Bones	11	12	3	1	—	—	—	—	—	—	—	—	—	—	—	—	14	13	27	
Syphilis ... ..	44	1	1	—	—	—	—	—	1	—	2	2	—	2	—	—	32	21	53	
Other Venereal Diseases	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	2	1	3	
Cancer (buccal cavity)... ..	—	—	—	—	—	2	—	—	1	—	4	15	19	14	3	—	46	12	58	
Cancer (stomach, liver, etc.)	—	—	—	—	—	1	—	—	—	5	16	62	85	94	26	—	158	131	289	
Cancer (periton., intest., rectum)	—	—	—	—	—	—	—	—	—	2	14	38	55	57	19	2	80	107	187	
Cancer (female genital organs)	—	—	—	—	—	—	2	—	—	6	18	31	30	26	6	—	—	119	119	
Cancer (breast) ... ..	—	—	—	—	—	—	—	—	—	1	8	15	23	17	8	1	1	72	73	
Cancer (skin) ... ..	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	1	3	1	4	
Cancer (other organs) ... ..	—	1	—	1	1	—	2	1	1	5	21	33	41	41	16	3	109	58	167	
Other Tumours (undefined)	—	—	—	—	—	—	—	—	—	—	1	4	1	2	1	—	5	4	9	
Rheumatic Fever ... ..	—	—	1	—	—	5	10	5	1	4	4	4	2	—	1	—	11	26	37	
Ch. Rheumatism, Osteo-Arthritis	—	—	—	—	—	—	—	—	—	—	1	3	8	6	3	1	7	15	22	
Gout ... ..	—	—	—	—	—	—	—	—	—	—	—	5	3	5	2	—	11	4	15	
Scurvy ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Diabetes ... ..	—	—	—	—	—	—	3	2	2	2	5	19	19	22	5	2	37	44	81	



TABLE II.—continued.

CAUSE OF DEATH.	AGES.																	Fe- Per-	
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85-	Males	males.	sons
Exophthalmic Goitre ...	—	—	—	—	—	—	—	1	—	1	1	1	1	—	—	—	—	5	5
Addison's Disease ...	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—	1	2	3
Leucocythæmia, Lymphad'oma ...	—	—	—	—	—	—	2	—	1	—	1	2	2	2	—	—	8	2	10
Anæmia, Chlorosis ...	—	—	1	—	1	—	—	4	—	3	2	7	10	7	2	—	15	22	37
Other General Diseases ...	2	—	—	1	—	2	—	6	1	—	—	1	—	—	—	—	7	6	13
Alcoholism ...	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1
Chronic Lead Poisoning ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Poisonings (occupational) ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ditto do. (not occupational) ...	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	1
II.—NERVOUS SYSTEM.																			
Encephalitis ...	—	—	—	1	—	1	—	3	2	3	5	—	1	—	—	—	7	9	16
Cerebro-Spinal Fever ...	3	4	1	2	—	4	—	5	—	—	1	—	—	—	—	—	10	10	20
Meningitis (other forms) ...	30	16	14	5	2	6	8	3	3	4	3	4	1	—	—	—	44	55	99
Locomotor Ataxy ...	—	—	—	—	—	—	—	—	—	3	6	7	7	4	—	—	20	7	27
Acute Poliomyelitis ...	—	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	2	3
Other Dis., Spinal Cord ...	2	—	—	—	—	—	1	—	2	3	2	15	13	12	2	—	29	23	52
Cerebral Hæmorrhage, Apoplexy ...	—	1	—	—	1	—	—	—	3	3	23	56	106	163	102	9	198	269	467
Softening of Brain ...	—	—	—	—	—	—	—	—	—	—	—	—	6	7	5	1	11	8	19
Paralysis (no specified cause) ...	—	—	—	—	—	—	—	—	—	—	3	3	10	15	19	3	28	25	53
General Paralysis of Insane ...	—	—	—	—	—	—	—	—	1	12	18	14	9	1	—	—	49	6	55
Other Mental Alienation ...	—	—	—	—	—	—	—	—	1	—	2	3	3	3	—	—	5	7	12
Epilepsy ...	—	—	—	—	—	1	5	3	10	14	11	18	16	7	4	—	40	49	89
Convulsions (5 and over) ...	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	1	1	2
Convulsions (under 5) ...	133	24	8	—	—	—	—	—	—	—	—	—	—	—	—	—	93	72	165
Chorea ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2
Hysteria, Neuralgia, Neuritis ...	—	—	—	—	—	—	—	—	—	—	—	1	2	3	2	—	—	8	8
Other Dis. of Nervous System ...	2	1	2	3	—	7	5	2	1	7	7	7	6	2	2	—	29	25	54
Diseases of Eyes and Annexa... ..	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	2	—	2
Mastoid Disease ...	1	3	1	1	—	—	—	—	—	1	—	—	—	1	—	—	5	3	8
Other Diseases of Ears ...	2	1	—	—	1	1	4	1	2	3	2	2	1	—	—	—	10	10	20
III.—CIRCULATORY SYSTEM.																			
Pericarditis ...	—	1	2	—	—	—	2	—	1	1	1	1	1	—	—	—	7	3	10
Acute Endocarditis ...	2	—	—	—	—	3	2	3	4	8	4	7	4	—	—	—	15	22	37
Valvular Disease ...	—	1	—	—	—	6	5	12	7	25	31	53	92	113	32	4	166	215	381
Fatty Degeneration of Heart ...	—	—	—	—	—	—	—	—	—	1	2	6	7	16	5	1	17	21	38
Other Organic Diseases of Heart ...	1	—	—	—	1	4	9	7	8	33	53	99	152	273	197	34	420	451	871
Angina Pectoris ...	—	—	—	—	—	—	—	—	—	1	2	2	6	10	4	—	13	12	25
Aneurysm ...	—	—	—	—	—	—	—	—	—	1	2	8	2	1	1	—	13	2	15
Arterio Sclerosis ...	—	—	—	—	—	—	—	—	—	1	—	19	35	53	37	11	87	69	156
Other Diseases of Arteries ...	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	1
Cer. Embolism, Thrombosis ...	—	—	—	—	2	—	1	—	—	—	5	16	35	39	23	3	52	72	124
Other Embolism and Throm. ...	—	—	—	—	—	—	1	—	—	—	—	—	1	4	1	—	4	3	7
Diseases of Veins ...	—	—	—	—	—	—	—	—	—	—	3	1	3	2	—	—	4	5	9
Status Lymphaticus ...	2	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	2	3
Other Dis. of Lymphatic System ...	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	2	2
Other Dis. of Circulatory System ...	—	—	—	—	—	—	—	—	—	—	—	1	1	2	—	—	2	2	4
IV.—RESPIRATORY SYSTEM.																			
Diseases of Nasal Fossæ ...	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Diseases of Larynx ...	4	8	4	—	3	2	—	1	1	—	—	—	1	2	—	3	16	13	29
Diseases of Thyroid Body ...	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1
Bronchitis ...	179	65	16	5	5	4	1	2	1	5	22	70	178	297	249	49	566	582	1148
Broncho-pneumonia ...	191	142	49	17	10	13	1	2	1	5	7	9	13	22	21	3	240	266	506
Lobar Pneumonia ...	19	15	7	1	2	7	7	4	12	23	34	32	43	25	8	—	155	84	239
Pneumonia (type not stated) ...	34	25	15	4	2	9	4	5	3	12	23	38	32	33	19	3	138	123	261
Pleurisy ...	—	1	5	2	—	—	—	—	1	1	2	—	8	7	4	5	—	18	20
Pul. Cong., Pul. Apoplexy ...	9	5	1	—	—	—	—	—	—	1	2	—	2	6	10	2	19	19	38
Gangrene of Lung ...	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1

TABLE II.—*continued.*

CAUSE OF DEATH.	AGES.																Males.	Fe- males.	Per sons.
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85-			
Asthma ... ..	1	—	1	—	—	—	—	—	—	3	6	11	7	12	6	—	27	20	47
Pulmonary Emphysema ...	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	1	2	3
Fibroid Disease of Lung ...	—	—	—	1	—	—	—	—	—	—	—	1	1	—	1	—	3	1	4
Other Dis. of Respiratory System	—	1	—	—	—	—	—	—	—	1	—	2	1	1	—	—	6	—	6
V.—DIGESTIVE SYSTEM.																			
Diseases of Teeth and Gums ...	2	—	—	—	1	—	—	1	—	1	3	—	—	—	1	—	4	5	9
Other Dis. of Mouth and Annexa	1	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	2	1	3
Diseases of Pharynx, Tonsillitis	1	2	—	3	2	1	—	1	—	1	—	—	1	—	—	—	7	5	12
Diseases of the Esophagus ...	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	1
Perforating Ulcer of Stomach ...	—	—	—	—	—	—	—	2	2	4	9	9	9	8	2	—	19	26	45
Inflammation of Stomach ...	53	11	2	1	1	2	1	—	—	1	2	6	7	10	9	1	56	51	107
Other Diseases of Stomach ...	—	—	—	—	—	—	1	—	—	—	—	—	2	1	3	—	5	2	7
Diarrhœa, Enteritis ...	289	91	12	8	4	5	1	5	1	7	7	9	14	20	15	1	252	237	489
Ankylostomiasis ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Intestinal Parasites ...	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Appendicitis ...	—	—	—	2	2	10	18	4	6	13	6	5	1	—	—	—	40	27	67
Hernia ...	1	—	—	—	—	—	—	—	2	—	2	6	8	11	9	—	16	23	39
Intestinal Obstruction ...	6	2	—	—	1	2	2	—	—	3	3	6	6	10	6	1	21	27	48
Other Diseases of Intestines ...	1	—	1	—	—	—	—	—	—	—	—	—	1	1	2	—	3	3	6
Acute Yellow Atrophy of Liver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydatid of Liver ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cirrhosis of Liver ...	2	1	—	—	—	—	—	—	—	3	15	21	17	6	—	—	36	29	65
Biliary Calculi ...	—	—	—	—	—	—	—	—	—	1	1	6	2	4	2	—	4	12	16
Other Diseases of Liver ...	1	—	—	—	—	1	—	—	—	3	4	4	3	4	—	1	9	12	21
Diseases of Spleen ...	—	—	—	—	—	1	—	—	—	2	—	—	—	—	—	—	2	1	3
Peritonitis (cause unstated) ...	—	—	—	—	—	1	3	—	—	—	1	4	2	2	—	—	6	7	13
Other Dis. of Digestive System	—	—	—	—	—	1	—	—	—	1	—	1	—	1	—	—	3	1	4
VI.—GENITO-URINARY SYSTEM.																			
Acute Nephritis ...	3	3	6	3	1	1	1	2	3	—	5	3	4	3	—	—	19	19	38
Bright's Disease ...	1	1	1	—	—	1	3	5	2	13	27	65	64	63	20	3	169	100	269
Chyluria ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Dis. of Kidney & Annexa	—	—	—	—	—	—	—	—	—	2	2	3	1	—	1	—	2	7	9
Calculi of Urinary Passages ...	—	—	—	—	—	—	—	—	—	2	1	3	2	1	—	—	7	2	9
Diseases of Bladder ...	—	1	—	—	—	1	—	—	—	—	1	1	6	7	8	4	23	6	29
Diseases of Urethra, etc. ...	—	—	—	—	—	—	—	—	—	—	1	—	2	2	1	—	6	—	6
Diseases of Prostate ...	—	—	—	—	—	—	—	—	—	—	—	—	4	8	15	1	28	—	28
Diseases of Male Genital Organs	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Uterine Hæmorrhage ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Uterine Tumour ...	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	3	3	—
Other Diseases of Uterus ...	—	—	—	—	—	—	—	—	1	1	—	—	1	1	—	—	4	4	—
Ovarian Cyst, Tumour ...	—	—	—	—	—	—	—	—	—	—	1	1	—	1	—	—	3	3	—
Other Dis. of Female Organs ...	—	—	—	—	—	—	—	—	—	3	2	—	—	1	—	—	6	6	—
Diseases of Breast ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VII.—THE PUERPERAL STATE.																			
Accidents of Pregnancy ...	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	2	2
Puerperal Hæmorrhage ...	—	—	—	—	—	—	—	1	1	5	3	—	—	—	—	—	10	10	—
Other Accidents of Childbirth...	—	—	—	—	—	—	—	—	—	2	3	—	—	—	—	—	5	5	—
Puerperal Fever ...	—	—	—	—	—	—	—	1	7	15	8	—	—	—	—	—	31	31	—
Puerperal Alb'ria & Convulsions	—	—	—	—	—	—	—	2	2	5	4	—	—	—	—	—	13	13	—
Phleg. Dolens, Embolism ...	—	—	—	—	—	—	—	—	—	7	2	—	—	—	—	—	9	9	—
Puerperal Insanity ...	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	1	—
Puerperal Diseases of Breast ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
VIII.—SKIN & CELLULAR TISSUE.																			
Senile Gangrene ...	—	—	—	—	—	—	—	—	—	—	—	1	1	12	10	2	16	10	26
Gangrene (other types)...	1	1	—	—	—	—	1	—	1	—	—	1	1	5	1	—	5	7	12
Carbuncle, Boil ...	—	—	—	—	—	—	—	—	—	—	—	—	1	1	1	—	1	2	3
Phlegmon, Acute Abscess ...	5	—	1	—	—	2	2	—	—	—	—	2	4	3	2	—	11	10	21
Dis. of Integumentary System	13	—	—	—	—	—	—	—	1	—	—	3	2	2	1	1	12	11	23

TABLE II.—continued.

CAUSE OF DEATH.	AGES.															Fe- Males	males.	Per- sons.	
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-				85-
IX.—BONES AND ORGANS OF LOCOMOTION.																			
Diseases of Bones ... ..	1	—	1	2	—	3	3	2	—	—	2	—	—	—	1	—	8	7	15
Diseases of Joints ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	1
Amputations ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Dis. of Locomotor System	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1
X.—MALFORMATIONS.																			
Congenital Malformations ...	78	5	2	—	—	2	3	—	—	—	—	—	—	—	—	—	52	38	90
XI.—DISEASES OF EARLY INFANCY.																			
Premature Birth ... ..	404	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	232	172	404
Infantile Debility, Icterus, etc.	263	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	146	117	263
Other Diseases of early infancy	57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	27	30	57
Lack of Care (under 3 months)	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	5	13
XII.—OLD AGE.																			
Old Age ... ..	—	—	—	—	—	—	—	—	—	—	—	—	6	136	331	156	239	390	629
XIII.—EXTERNAL CAUSES.																			
Suicide—																			
By Poison ... ..	—	—	—	—	—	—	—	1	—	1	1	3	—	—	—	—	3	3	6
By Asphyxia ... ..	—	—	—	—	—	—	—	—	—	—	2	2	—	1	—	—	5	—	5
By Hanging, Strangulation...	—	—	—	—	—	—	—	—	—	—	3	2	3	1	—	—	6	3	9
By Drowning ... ..	—	—	—	—	—	—	—	—	—	2	3	2	1	1	—	—	5	4	9
By Firearms ... ..	—	—	—	—	—	—	—	—	—	1	—	2	—	—	—	—	3	—	3
By Cutting or Piercing ... ..	—	—	—	—	—	—	—	—	—	2	1	4	4	1	—	—	7	5	12
By Jumping from high place	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	1
By Crushing ... ..	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1
Other Suicides ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Poisoning by Food ... ..	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	1	1	2
Other Acute Poisonings ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Conflagration ... ..	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	1
Burns (conflagration excepted)	3	9	7	7	13	12	8	2	1	5	2	3	2	6	1	—	28	53	81
Deleterious Gases, Suffocation	27	—	1	—	1	1	1	—	—	—	1	—	—	1	—	—	18	15	33
Accidental Drowning ... ..	—	—	—	—	1	7	8	2	—	3	5	7	4	2	1	—	33	7	40
Injury—																			
By Firearms ... ..	—	—	—	—	—	2	—	—	—	—	—	1	—	—	—	—	3	—	3
By Cutting or Piercing ... ..	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1
By Fall ... ..	4	1	1	—	—	—	—	7	1	3	8	9	9	14	9	3	39	30	69
In Mines and Quarries ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
By Machines ... ..	—	—	—	—	—	—	—	1	1	5	2	4	1	—	—	—	13	1	14
By Other Crushing ... ..	—	1	2	6	4	8	3	2	2	8	8	15	11	15	4	—	64	25	89
By Animals ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Starvation ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Excessive Cold ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Effects of Heat... ..	—	—	—	—	—	—	1	—	—	1	1	—	—	—	—	—	1	2	3
Lightning ... ..	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	1
Electricity ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Homicide by Firearms... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Homicide by Cutting or Piercing	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	1	1	2
Homicide by other means ... ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Fractures (cause not specified)	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	2	—	2
Other Violence ... ..	3	—	—	—	—	—	—	—	—	3	6	3	1	—	—	—	12	4	16
XIV.—ILL-DEFINED CAUSES.																			
Dropsy ... ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Syncope (1 year and under 70)	—	—	—	—	—	—	—	—	—	—	—	1	3	1	—	—	2	3	5
Sudden Death (not defined) ...	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2
Heart Failure (1 and under 70)	—	—	—	1	—	—	—	4	2	6	11	19	41	19	—	—	56	47	103
Other ill-defined causes ... ..	—	25	4	4	—	—	—	—	—	—	1	—	1	1	—	—	21	15	36
Cause not specified ... ..	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	2
Totals ... ..	2142	737	278	156	104	268	185	198	227	613	879	1240	1509	1885	1344	316	6151	5930	12081



TABLE III. Births and Deaths Registered in, or belonging to, each Ward during the Year ending December 30th, 1916.

CAUSES OF DEATH.	Abcock's Green	All Saints'	Aston	Balsall Heath	Buddenden and Nechells	Edgbaston	Edgbaston (North)	Edgbaston (South)	Handsworth	Harborne	King's Norton	Ladywood	Lozells	Market Hall	Moseley and Kings Heath	Northfield	Rotton Park	St. Bartholomew's	St. Mary's	St. Paul's	Saltley	Sandwell	Selly Oak	Small Heath	Soho	Sparkbrook	Sparkhill	Washwood Heath	Vartley	Not Located	City
Enteric Fever ...	...	...	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...
Small Pox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
German Measles ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Whooping Cough ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria, Croup ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Influenza ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Erysipelas ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pulmonary Tuberculosis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculous Meningitis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Abdominal Tuberculosis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Tuberculous Dis. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cancer ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rheumatic Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cerebro-Spinal Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Meningitis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acute Poliomyelitis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Organic Dis. of Heart ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bronchitis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pneumonia ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Respiratory Dis. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoea & Enteritis : Under 2 years ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Two years and over ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Appendicitis, Typhlitis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cirrhosis of Liver ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alcoholism ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nephritis & Bright's Dis ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal Fever ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Accidents & Dis- eases of Pregnancy and Parturition ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...								

TABLE IV.

Deaths under 1 year Registered in, or belonging to, each Ward during the Year ending December 30th, 1916.

CAUSES OF DEATH.	Acock's Green.	All Saints.	Aston.	Balsall Heath.	Duddeston and Nethells.	Edgbaston.	Edington (North).	Edington (South).	Handsworth.	Harborne.	King's Norton.	Ladywood.	Lozells.	Market Hall.	Moseley and King's Heath.	Northfield.	Rotton Park.	St. Bartholomew's.	St. Martin's.	St. Mary's.	St. Paul's.	Salley.	Sandwell.	Selly Oak.	Small Heath.	Soho.	Sparkbrook.	Sparkhill.	Washwood Heath.	Vardley.	Not Located.	City.
Small-pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chicken Pox	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever	...	...	2	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Whooping Cough	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria and Croup	...	...	14	2	12	4	2	3	1	3	3	3	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Erysipelas	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculous Meningitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Abdominal Tuberculosis	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Tuberculous Diseases	1	...	...	...	9	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Meningitis (not Tuberculous)	...	1	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Convulsions	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Laryngitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bronchitis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pneumonia (all forms)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteritis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gastritis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Syphilis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rickets	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Suffocation, Overlying Injury at Birth	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Atelectasis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Congenital Malformations	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Premature Birth	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Atrophy, Debility, and Marasmus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other causes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
ALL CAUSES	49	111	136	49	212	52	26	14	44	21	28	95	59	51	32	9	93	158	176	151	136	58	25	53	45	50	58	23	79	27	22	212





TABLE VI.

Cases of Infectious Disease notified during the Year 1916. Classified according to ages.

DISEASE.	AGES.																Totals.
	0-	1-	2-	3-	4-	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85-	
Enteric Fever ...	...	...	...	...	...	1	2	3	3	4	3	3	...	...	...	...	19
Smallpox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles ...	426	809	1031	1080	1031	5063	650	226	132	130	37	18	2	2	...	...	10635
German Measles ...	120	153	181	214	219	2247	837	385	258	247	109	22	2	2	...	...	4996
Scarlet Fever ...	22	48	85	141	135	765	304	133	66	59	31	6	1	...	...	...	1796
Diphtheria ...	14	39	60	78	63	338	156	68	58	42	29	4	2	...	...	...	951
Erysipelas ...	6	9	6	7	5	28	28	32	41	86	114	109	85	56	22	3	637
Pulmonary Tuberculosis ...	10	17	11	11	19	450	400	237	331	722	671	344	133	29	3	...	3388
Tuberculous Meningitis ...	11	11	11	8	5	6	4	...	1	2	...	...	...	...	...	...	59
Tuberculosis of Peritoneum and Intestines ...	33	20	8	2	1	15	5	2	2	6	2	2	1	...	...	...	99
Tuberculosis of Spinal Column ...	...	...	...	...	...	...	2	...	2	4	2	...	...	...	...	...	10
Tuberculosis of Joints ...	...	1	1	...	...	10	6	4	1	1	3	1	...	1	...	...	29
Tuberculosis of Other Organs ...	...	2	5	8	7	86	64	14	9	12	11	6	...	4	...	1	229
Disseminated Tuberculosis ...	2	2	...	2	1	3	2	3	...	1	...	...	...	...	...	...	16
Cerebro-Spinal Fever ...	3	4	1	2	1	7	2	6	2	...	1	...	...	...	...	...	29
Polio-myelitis ...	1	7	4	2	2	1	1	1	...	...	...	...	...	...	...	...	19
Puerperal Fever ...	...	...	...	...	...	...	...	6	34	83	46	1	...	...	...	...	170
Ophthalmia Neonatorum ...	334	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	334
Total ...	982	1122	1404	1555	1489	9020	2463	1120	940	1399	1059	516	226	92	25	4	23416

TABLE VII.

Cases of Infectious Disease notified during the Year 1916. *Classified according to Wards.*

DISEASE.	All Saints.	Aston.	Balsall Heath.	Edgbaston and Nechells.	Edgbaston North.	Edgbaston South.	Handsworth.	Harborne.	Kings Norton.	Ladywood.	Lozells.	Market Hall.	Moseley and King's Heath.	Northfield.	Rotton Park.	St. Bartholomews.	St. Martin's and Ibertland.	St. Mary's.	St. Paul's.	Sailey.	Sandwell.	Selly Oak.	Small Heath.	Scho.	Sparkbrook.	Sparkhill.	Washwood Heath.	Vardley.	Not located.	City.		
Enteric Fever ...	1	1	...	2	1	...	...	...	1	...	1	...	4	...	...	...	1	...	1	...	1	...	1	...	3	...	1	...	...	19		
Smallpox ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
Measles ...	277	664	419	305	443	224	176	403	85	172	706	339	302	145	22	838	400	642	392	233	605	116	253	425	255	331	141	624	225	28	10635	
German Measles ...	475	234	134	205	298	95	194	263	96	615	54	74	37	369	80	135	40	86	19	44	68	135	251	159	189	166	220	42	176	20	4996	
Scarlet Fever ...	61	57	88	67	106	77	48	65	45	36	55	41	29	37	54	69	75	74	25	37	81	31	60	60	44	61	31	179	26	34	1796	
Diphtheria ...	60	67	30	44	36	31	13	18	13	16	34	15	19	13	22	50	29	33	58	35	44	11	44	19	12	52	23	28	17	43	951	
Erysipelas ...	16	26	14	28	47	12	18	11	14	10	14	20	18	13	12	3	29	34	37	29	13	9	47	17	12	19	11	24	11	17	637	
Pulmonary Tuberculosis	75	172	147	128	277	97	28	39	75	17	46	131	134	80	44	15	164	263	238	219	150	118	45	60	132	79	132	60	143	42	36	3388
Tubercular Meningitis	3	6	2	3	3	...	1	...	4	...	3	1	1	1	...	...	3	7	6	3	5	...	1	...	1	2	...	3	...	...	59	
Tuberculosis of Peritonæum and Intestines	3	1	4	2	14	5	6	1	2	...	1	...	1	1	...	6	3	10	4	7	7	...	2	4	1	1	...	6	...	5	99	
Tuberculosis of Spinal Column ...	...	1	1	1	...	...	...	...	...	...	1	...	...	...	...	...	1	1	1	1	...	...	...	...	...	...	...	1	...	1	10	
Tuberculosis of Joints	...	2	1	...	3	...	...	2	1	1	1	...	...	1	1	1	2	2	...	2	2	1	...	4	1	...	...	1	...	1	29	
Tuberculosis of Other Organs ...	11	6	10	7	8	9	4	5	4	3	14	7	5	2	...	17	21	13	14	7	9	3	3	10	4	6	5	8	5	5	229	
Disseminated Tuberculosis ...	...	1	...	3	...	1	1	...	...	...	1	1	1	...	2	1	1	1	1	...	...	1	...	...	...	...	...	2	...	...	16	
Cerebro-Spinal Fever	1	...	1	2	1	...	1	...	1	3	...	1	...	...	2	1	1	2	1	1	4	...	1	...	3	1	1	...	...	...	29	
Polio-myelitis ...	1	...	1	1	...	...	1	...	...	...	...	2	...	...	1	3	2	...	...	3	...	...	...	1	2	1	...	...	...	...	19	
Puerperal Fever ...	2	9	8	9	13	2	...	1	2	2	6	2	5	...	6	15	9	13	8	7	...	2	5	3	12	6	7	5	1	170		
Ophthalmia Neonatorum	2	22	19	16	28	6	4	8	2	4	...	13	5	4	7	...	20	29	21	22	16	7	2	12	13	5	14	3	21	4	5	334
Total ...	988	1269	879	1047	870	981	443	498	849	282	933	1015	651	491	648	197	1343	942	1174	720	576	965	358	736	850	607	804	502	1091	511	196	23416

TABLE VIII.

*Temperature of the Air and Ground, Rainfall, Sunshine, and Wind, in each Month of the Year 1916  
Observed at the Birmingham and Midland Institute Observatory, Edgbaston,  
by Mr. Alfred Cresswell.*

MONTH.	TEMPERATURE OF THE AIR.				TEMPERATURE OF THE GROUND.		HOURS OF SUNSHINE.	RAINFALL IN INCHES.		DAYS ON WHICH 0·01 INCH OR MORE OF RAIN FELL.	MILES OF WIND.				
	Highest in the shade.		Lowest in the shade.		Mean for the Month.			Maximum at 1 foot deep.	Maximum at 4 feet deep.		1916.	Above or below the average. *			
	1916.	Above or below the previous highest.	1916.	Above or below the previous lowest.	1916.	Above or below the average. *									
JAN.	54·8	—	33·1	+ 22·3	44·8	+ 7·1	45·8	46·0	43	+ 10	1·15	+ 0·78	15	13063	+2952
FEB.	51·7	— 10·2	27·1	+ 19·1	37·7	— 1·0	45·8	43·0	51	— 1	3·28	+ 1·66	20	11546	+1947
MAR.	54·5	— 12·1	26·9	+ 7·9	37·1	— 4·1	43·3	42·5	47	— 39	2·79	+ 0·85	20	11392	+ 888
APR.	71·0	— 8·0	32·5	+ 5·8	47·4	+ 1·8	44·6	48·8	161	+ 43	1·10	— 0·42	11	10239	+ 763
MAY	78·1	— 0·5	35·5	+ 4·5	53·2	+ 2·8	48·7	56·7	139	+ 1	2·3	+ 0·16	13	8147	— 885
JUNE	68·6	— 14·3	39·3	+ 1·7	52·8	— 4·4	49·8	54·0	111	— 37	1·75	— 0·44	15	8992	+ 747
JULY	82·1	— 6·4	46·6	+ 7·1	59·7	+ 0·6	52·9	60·7	129	— 13	1·65	— 0·67	11	7522	— 775
AUG.	81·4	— 12·5	45·0	+ 3·8	61·9	+ 2·6	54·8	61·9	143	+ 3	2·21	— 0·62	13	8058	— 403
SEPT.	68·3	— 22·3	43·1	+ 10·1	55·8	+ 0·2	54·1	56·1	76	— 38	1·55	— 0·09	12	8154	+ 211
OCT.	66·0	— 10·5	32·4	+ 4·5	51·3	— 2·7	53·0	55·8	84	+ 15	3·22	+ 0·49	22	11574	+2723
NOV.	61·4	— 0·2	29·7	+ 9·7	43·4	+ 0·7	50·6	48·3	48	+ 11	3·31	+ 1·05	14	10650	+1321
DEC.	54·6	— 2·2	24·3	+ 9·9	35·8	— 3·3	47·3	42·9	18	— 8	2·13	— 0·67	13	7666	—2954

\* In the twenty-nine years 1887-1915.

TABLE IX.

*Meteorology and Mortality in each week of the year 1916.*

WEEK.		Total Deaths.	Deaths under 1 year.	Deaths 65 and up.	DEATHS FROM							TEMPERATURE					Horizontal Movement of Air in Miles	Hours of Sunshine.	Rainfall in inches.
No.	Ending.				Measles.	Whooping Cough.	Diphtheria and Enteritis under 2.	Pulmonary Tuberculosis.	Other Forms of Tuberculosis.	Respiratory Diseases.	of the Air.			Highest 4 Feet Decp.					
											Highest in Shade.	Lowest in Shade.	Mean of Daily Maxima and Minima.						
1916.																			
1	Jan. 8	250	36	74	2	7	6	16	5	63	54.8	39.2	46.1	45.5	3,587	9.8	0.61		
2	" 15	245	45	69	—	3	2	24	7	55	51.3	34.0	43.8	45.8	2,977	8.0	0.12		
3	" 22	262	50	70	1	6	4	24	3	67	54.4	37.1	45.1	45.8	3,019	12.2	0.15		
4	" 29	230	60	59	1	7	4	15	5	67	49.5	33.1	43.8	45.7	2,219	10.8	0.05		
5	Feb. 5	254	50	69	—	9	5	22	1	70	51.2	32.0	41.2	45.8	2,141	15.2	0.62		
6	" 12	249	59	63	1	7	7	13	2	77	45.0	28.0	38.3	45.6	2,897	24.0	0.57		
7	" 19	283	49	84	—	8	2	24	1	72	51.7	31.5	41.8	44.7	3,371	19.4	1.02		
8	" 26	275	51	84	1	7	3	22	6	77	39.3	27.2	33.4	44.1	2,793	3.8	0.54		
9	Mar. 4	312	63	96	—	19	4	26	2	69	38.2	27.1	33.5	43.8	2,095	6.7	0.84		
10	" 11	291	36	90	—	8	—	34	3	65	39.5	27.1	33.1	42.6	2,781	6.7	0.26		
11	" 28	303	42	107	—	7	4	28	3	78	49.5	33.2	40.2	42.0	2,136	—	0.99		
12	" 25	282	53	88	1	13	7	25	8	53	51.1	26.9	38.3	42.5	2,540	7.3	0.79		
13	April 1	261	49	72	1	12	11	22	9	50	56.1	29.1	39.9	42.3	2,706	25.1	0.43		
14	" 8	290	46	80	—	23	1	23	3	68	60.3	32.5	45.3	42.8	1,686	47.9	0.05		
15	" 15	309	54	99	3	29	3	28	4	70	62.2	35.6	46.2	43.2	3,290	49.7	0.45		
16	" 22	278	45	90	1	20	4	24	3	66	54.0	35.5	43.9	43.8	2,502	9.3	0.60		
17	" 29	337	57	96	1	30	4	25	7	87	71.0	35.0	53.6	44.3	2,347	37.5	—		
18	May 6	264	32	95	1	16	2	20	3	49	64.3	38.9	48.2	45.3	2,478	16.0	1.13		
19	" 13	252	63	67	4	14	7	20	7	46	62.4	35.5	47.5	45.4	1,788	12.4	0.83		
20	" 20	234	36	84	5	18	7	13	5	39	76.8	43.4	57.9	46.4	1,719	52.5	0.11		
21	" 27	215	35	55	4	12	2	23	6	24	78.1	41.4	57.6	48.1	1,646	52.6	0.22		
22	June 3	201	32	42	4	11	8	29	5	26	65.7	42.2	53.7	48.9	2,027	35.0	0.08		
23	" 10	213	35	50	6	13	3	20	9	25	58.0	40.6	50.0	48.9	2,218	33.9	0.82		
24	" 17	221	28	64	5	11	4	20	8	22	67.2	39.3	51.1	48.8	2,274	29.1	0.32		
25	" 24	194	32	57	6	9	1	17	3	31	68.6	43.3	55.9	49.0	1,774	19.7	0.02		
26	July 1	199	32	54	3	2	7	21	2	31	67.3	47.4	55.2	49.9	1,979	20.5	0.65		
27	" 8	183	29	55	1	5	1	29	6	20	65.2	48.5	57.3	50.1	1,606	14.5	1.11		
28	" 15	160	18	48	2	5	3	20	8	17	66.1	46.6	56.2	50.8	2,308	19.4	0.14		
29	" 22	181	29	47	4	7	4	16	4	25	72.3	50.0	60.4	51.1	1,614	23.3	0.23		
30	" 29	142	14	50	3	4	2	17	5	11	78.4	50.0	63.2	52.2	1,343	66.0	—		
31	Aug. 5	164	26	54	3	2	6	16	1	14	82.1	49.4	66.9	53.5	1,528	54.9	—		
32	" 12	171	20	48	—	1	6	12	2	22	78.3	48.7	64.2	54.3	1,590	45.6	—		
33	" 19	172	34	43	2	4	9	20	2	19	72.0	53.3	61.5	54.8	1,982	28.9	0.98		
34	" 26	154	30	40	—	1	16	14	5	17	70.1	50.9	61.5	54.8	1,789	29.7	0.41		
35	Sept. 2	195	50	38	2	6	29	9	4	16	68.3	45.0	57.8	54.2	1,852	26.1	0.84		
36	" 9	195	42	52	2	—	16	19	4	11	68.3	48.4	58.4	54.0	1,757	24.0	0.35		
37	" 16	185	53	47	1	2	28	8	2	19	64.5	43.1	55.0	54.0	2,155	18.1	0.12		
38	" 23	217	60	44	1	4	26	27	2	20	63.1	44.0	51.9	53.8	1,923	9.3	0.54		
39	" 30	189	47	57	1	2	19	12	5	20	68.4	45.2	56.6	52.9	1,933	14.6	0.51		
40	Oct. 7	188	34	47	1	1	16	14	5	26	66.0	45.2	56.4	52.9	2,529	15.3	1.23		
41	" 14	212	34	58	2	—	10	20	5	40	64.6	49.2	57.7	53.0	3,006	13.1	0.17		
42	" 21	169	34	48	—	—	10	20	3	22	59.1	37.2	46.8	53.0	1,988	34.0	0.26		
43	" 28	191	33	50	—	—	10	29	5	18	55.2	32.9	45.6	52.0	2,599	22.2	0.79		
44	Nov. 4	184	37	42	2	4	10	25	3	30	54.2	37.7	46.4	50.9	2,782	11.3	1.31		
45	" 11	201	37	54	5	1	7	19	4	24	59.0	40.1	47.4	50.0	2,835	16.0	1.25		
46	" 18	164	28	53	3	3	9	17	2	23	61.4	29.7	42.0	49.7	2,276	13.6	0.09		
47	" 25	260	38	77	1	1	7	30	6	49	57.8	32.2	42.5	49.1	2,426	11.7	1.27		
48	Dec. 2	240	34	84	2	2	6	22	3	39	47.0	28.1	37.7	48.0	2,080	4.5	0.13		
49	" 9	286	53	95	2	1	4	32	2	74	43.4	25.3	35.4	47.1	1,793	6.2	0.37		
50	" 16	323	43	110	1	1	3	35	3	101	37.3	27.8	33.9	46.0	1,034	0.2	0.18		
51	" 23	340	59	111	7	—	6	31	2	104	40.0	25.2	32.9	46.0	1,765	2.4	1.12		
52	" 30	311	56	135	2	—	5	16	4	94	54.6	24.3	39.4	45.0	2,224	8.7	0.29		







PUBLIC HEALTH AND HOUSING DEPARTMENT.

THE COUNCIL HOUSE,

BIRMINGHAM.

REPORT OF THE MEDICAL OFFICER OF HEALTH ON MATERNITY  
AND CHILD WELFARE DURING 1916.

During the year 1916 there has been a very considerable increase in the interest taken in the subject of Maternity and Infant Welfare, and in the appreciation of the results which have already followed the definite work undertaken in recent years in connection with it. This work has grown very rapidly. It may be said to date from 1899, when the Corporation appointed the first four health visitors. It is true that before this time a great deal of general sanitary work was done which benefited both mother and infant, and also that certain direct instructions were given in regard to the feeding and care of infants, but no visitation of the homes was possible, and little was done in the direction of instructing mothers in the feeding and rearing of their babies.

*Nature does not endow any mother with the necessary information as to how to shield her infant from the dangers which surround it in a civilised community.* Among the rich, as well as among the poor, need of instruction is evident. Among the wealthy this is obtained by better general education, by a wider general reading, and by more easily available instruction of the right kind by intelligent and well-informed relatives, nurses, etc. Among the working classes the need is very great for well-directed instruction. Year by year it grows more, for gradually the majority of the girls of the working classes are leaving their homes for the office or the factory at or about the early age of fourteen. The hours of work are long and tiring for a large number of these young people. In the evening many of them quite properly crave for a walk in the fresh air, with a result that they soon regard it as no part of their duty to share in the domestic work of the home. When these girls marry, ten years later, their knowledge of the things that go to make up successful motherhood is very deficient.

There is among all classes of young married women who are entrusted with the life of a delicate baby a quite remarkable desire to know what is best for it. The more intelligent grasp the instruction given with avidity; the less intelligent are more difficult to deal with. The place where this instruction is given is mainly at a Maternity and Infant Welfare Centre or at the home during the visits of the Health Visitor.

The chief function of a Welfare Centre is to give this instruction by really competent instructors. It is mainly given by a doctor or qualified nurse. It is sometimes said that the employment of doctors for this work robs the general medical profession of its fees, but this very general impression rises from an entire lack of knowledge of what is required of a Welfare Centre, and its doctors and nurses. In the first place, the desire is that healthy children should be brought, so that the best advice should be given in order that the infant may remain healthy and grow up a healthy adult. Many children are brought showing some ailment, which can best be remedied by general treatment (dieting, etc.), while a few are brought with more serious ailments. These latter are referred to the patient's private medical attendant or to a hospital. In this way the Welfare Centre is a source of advantage to the medical profession rather than otherwise.

A second function of the Welfare Centre is to advise mothers as to their own health, particularly during pregnancy. There are a very large number of conditions which can be relieved by simple advice given by a properly qualified person to pregnant women. While this is being done many grave conditions are ascertained, and the necessary steps taken to secure proper medical treatment.

Other functions which play an important part in the success or otherwise of the Centre are the general "talks" on health and domestic subjects, the establishment of thrift clubs, of sewing classes, and cookery instruction, particularly that needed for young children, etc., etc.

#### SUMMARY OF WHAT HAS BEEN DONE IN BIRMINGHAM.

In 1899 the first Health Visitors were appointed to visit from house to house and give instructions in the feeding and rearing of young infants. The appointment of these women marked the first general recognition of the fact that ignorance is the chief cause of ill-health and mortality among the young. These Health Visitors were well received, and their work was acceptable among the class they dealt with. It was soon evident that the number was inadequate. Four more were appointed in 1900. In 1910 there were 17. At the present time the number engaged in this branch of the work is 49, while 13 other women are engaged in visiting for other purposes, and do in fact assist in the work. These comprise 10 Tuberculosis Visitors, 2 Workshop Inspectors, and 1 Midwife Visitor. At the various Voluntary Centres there are an additional 10 trained workers, making a total for the City of 72.

#### EXTENT AND NATURE OF THE PROBLEMS INVOLVED.

The following figures give some idea of the magnitude of the problems in Birmingham :—

Estimated number of married women under 45 years of age	...	...	114,538
Babies born alive in 1916 : Legitimate, 19,901 ; Illegitimate, 717	...	...	20,618
*Still-born babies reported by Midwives	...	...	337
Still-births notified by Doctors or Parents	...	...	392
Abortions, etc. ; estimate only	...	...	2,916
Number of Children from 1-5 years alive in Birmingham ; estimate only	...	...	79,139
Infants under 1 year who died during 1916	...	...	2,142
Infant Mortality Rate	...	...	104 per 1,000 births.
Children, 1-5 years, who died in 1916	...	...	1,275
Death-rate per 1,000 living	...	...	16.1

\* A Still-born Child is one born dead after the twenty-eighth week of gestation.

The above indicates the mass of the young life to be dealt with in this City and the number of mothers, some of whom require care and assistance during pregnancy, while all require the best assistance possible during and after their confinement.

The subject may be looked at more in detail under four headings : (1) Ante-natal care ; (2) Labour, and after care ; (3) Infant care to one year ; and (4) Supervision of young children.

#### I.—PRE-NATAL CARE.

Approximately 24,000 conceptions are taking place in Birmingham every year, which yield 20,500 live-born infants and 3,500 dead-born conceptions, while 2,000 infants born alive are either born so feeble that they die within a few weeks, or from ignorance on the mother's part are allowed to die before they reach one year of age. It is fairly correct, therefore, to say that of 24,000 conceptions, about 5,500 or 22%, terminate after much suffering, anxiety and expense in death before the age of one year is reached.

Dr. Amaud Routh has estimated that still-births are about 3% of live births. This would seem to be fairly correct for Birmingham. During 1916 the still-births notified were equal to 3.5% of the live births, and information obtained as to the history of previous pregnancies in 1,000 mothers showed them to have had 4,126 live-born babies and 136 still-born, equal to 3.05%. Dr. Routh further estimates that four abortions occur to every still-birth at a moderate computation.

No one has as yet suggested an adequate scheme for dealing with this great loss of human life and of suffering and expense. The subject is both delicate and difficult, first because of the natural diffidence of women to seek advice; secondly, because, in many of the cases no information exists as to how to prevent these intra-uterine deaths; and, thirdly, because there still exists a widespread belief that nature must be allowed to take its course.

One may almost speak of the prevention of abortions and still-births as a new subject—not understood, and one in regard to which but few medical men or women have given special attention, other than pointing out the danger signs.

Obviously the first necessity is adequate investigation as to the causes of this great national loss. Information is required as to the occurrence of every case—that is to say, the registration of each abortion and still-birth. Secondly, research is required by properly-trained persons into the material available, and it is most important that this should be of a thoroughly practical character, so as to include all the conditions which predispose to premature termination of pregnancy.

At the present time there is a tendency to attribute all abortions and still-births to: (1st), Venereal Disease; (2nd), Ill-health on the mother's part; or (3rd), Accidental violence, either in the form of unsuitable employment or actual injury. But the majority of cases do not fit into any one of these categories.

Apart from these fatalities, a good deal can be done to relieve suffering and ward off death by timely advice by a skilled medical man. It is therefore our duty to assist in providing an organisation which will give to pregnant women the important information that all of them should put themselves under skilled guidance.

The Doctor, Midwife, or Midwifery Nurse are obviously the first persons who are consulted, and it is therefore very important that they should know their duty, and be able to give the necessary advice. In a large number of cases all that is done at present is to note the time of the confinement, and this will probably continue in a large number of cases until some obligation is put on Doctors and Midwives to ascertain the existence of adverse conditions in every case. It is the duty of Midwives, Health Visitors, Infant Welfare Workers, and, indeed, of all women social workers, to advise that every pregnant woman should seek skilled advice either from her private doctor or from some other medical practitioner so soon as she knows her condition.

It is the function of the Maternity Centre to provide for women under these circumstances. Two large groups of women take advantage of the medical help given at the Centre: (a) Women who have no medical attendant of their own; (b) Women who would not avail themselves of any medical assistance except under some constant pressure. By providing a lady doctor at the Centre much of the preliminary objection is removed, and women are now coming more readily for pre-natal advice at most of the Centres. Serious cases are not treated, but are referred to private doctors or to the Hospitals. Minor ailments are dealt with on general lines, and, if necessary, are kept under close observation.

During 1916 medical work of this character was given at:—

- 17 Bloomsbury Street, by Dr. Molloy.
- 131 St. Vincent Street, by Dr. Molloy.
- Provident Dispensary, Farn Street, by Dr. Macirone.
- 108 Hope Street, by Dr. Hill.
- 41 Lichfield Road, by Dr. Fairley.
- 74 Washwood Heath Road, by Dr. Macirone.
- Infants' Health Society, River Street, by Dr. Walker and Dr. Notley.
- Village Bells, Harborne Lane, by Dr. Walker.
- 38 Latimer Street, by Dr. Walker.
- Lea House Road, Stirchley, by Dr. Aldridge.
- Friends' Institute, Warwick Road, by Dr. Walker.

The chief reasons why advice was sought are indicated below :—

1. Previous difficult confinements.
2. First pregnancies.
3. Suspected abnormal conditions, as suggested by their Midwives.
4. Other causes, such as varicose veins, mastitis, etc.

At all the Centres and by all the workers general advice was given, and many women were thereby properly attended to by medical men.

Obviously the above work, even when supplemented by the large amount of work done by private practitioners, is insufficient to meet the requirements of this very important subject in Birmingham. The work is increasing, however, and it is hoped soon to have ante-natal clinics at every Centre in the City to which pregnant women may go for advice.

## II.—MATERNITY AND MATERNITY AFTER CARE.

It has already been stated that of the estimated number of pregnancies in 1916 (24,263 approximately), 20,618 terminated in live births, while about 3,645 ended in abortions, miscarriages, still-births, etc. Very little information exists as to the miscarriages, but as regards the live-born infants the following figures are of interest :—

Total live-born babies	...	...	...	...	...	...	20,618
Attended by Midwives	...	...	...	...	...	...	13,024
Confinements in Infirmarys and Maternity Hospitals	...	...	...	...	...	...	623
Attended by Doctors or unattended	...	...	...	...	...	...	6,971

### *Midwives.*

222 Midwives gave notice of their intention to practise midwifery during 1916. Of these 75 held qualifications from one or other of the examining bodies, and 147 were put on the roll by reason of their being in bona-fide practice as midwives prior to the commencement of the Midwives Act. Many of the latter group of women are doing excellent work.

The so-called bona-fide midwives attended 9,185 births, equal to 62 cases per midwife, while the so-called trained midwives attended 4,176 births, equal to 56 cases per midwife. At 15s. per case, this represents an average income for the bona-fide midwife of £46, and for the trained midwife of £42 per annum.

The number of confinements attended is shown below :—

1 Midwife attended...	...	...	...	...	...	425
1     "     "	...	...	...	...	...	300—350
4     "     "	...	...	...	...	...	250—300
4     "     "	...	...	...	...	...	200—250
14    "     "	...	...	...	...	...	150—200
29    "     "	...	...	...	...	...	100—150
44    "     "	...	...	...	...	...	50—100
125   "     "	...	...	...	...	...	less than 50

The usual fees for attendance are 12s. 6d. in ordinary cases, and where husband only is insured; 15s. in primiparae, and in other cases where father and mother are entitled to maternity benefit; and £1 1s. in exceptional cases.

It will be seen from the above that about 200 midwives were not making £100 a year, assuming that no bad debts were met with. If an average of 150 cases are allowed per midwife, 90 women could have done the work during 1916, so that there is an excess of midwives of 132. Midwives' fees have been higher and the bad debts less numerous in recent years, largely as a result of the Insurance Act.

The calling is at present in an unsatisfactory state from redundancy of midwives, and wants to be brought into much closer contact with the authority administering the Act than is possible at present, with a view to getting midwives to do more in the way of ante-natal care. A municipal service has been suggested somewhat on the lines of the Birmingham Lying-in Charity. In this service a midwife is provided with a good house, fitted with bath, in the district where she works, and is paid a salary. There is a choice of midwives, but the number of cases taken would be limited. The great value of such a service would lie in the fact that a doctor would be available for every midwife, and would keep her practice under close supervision. However, the service is undoubtedly improving, so far as its quality is concerned, and further improvements are in contemplation.

### *Difficulties of Midwifery.*

The midwives had to send for a doctor in 1,270 cases during 1916, *i.e.*, one in every ten cases. This has now become about the usual proportion of cases requiring a doctor's help.

The chief reasons for requiring help were as follows :—

FOR MOTHER.			FOR CHILD.		
Delayed labour ... ..	231	times.	Ophthalmia ... ..	179	times.
Hæmorrhage ... ..	81	„	Debility of Child ... ..	110	„
Abnormal presentations ...	82	„	Other causes ... ..	97	„
Adhesive placenta ... ..	84	„			
Lacerated perinæum ... ..	143	„			
Other causes ... ..	263	„			

Great difficulty is experienced by midwives in getting a doctor at times, especially in the poorest class districts. The reasons for this are many—the chief being as follows :—

1. The doctor very naturally does not want to be concerned in a case which he fears may develop Puerperal Fever and damage his private practice and his reputation.
2. Frequently in poor class districts, even where sufficient income exists, there is no chance of getting any fee, or else the fee is offered by instalments of 1s. per week.
3. An increasingly large number of doctors are giving up attendance on midwifery cases as a result of the exacting conditions of the Insurance Act.

All of these conditions are daily becoming more evident in the central areas, and, indeed, in the suburban areas the shortage of medical assistance is so great that it is not infrequent at times to have to send for two or three or more doctors before one can be obtained for the emergency—during the whole of the time thus wasted great anxiety and often great pain is experienced, while occasionally real harm to mother or child results. It is hoped that some adequate midwifery medical service will eventually be established when the war is over. Pending this, the Public Health Committee have given instructions for enquiry to be made into the best means of temporarily relieving the conditions by greatly extending the existing arrangements :—(1) So as to enable the Board of Guardians to pay a fee to the nearest doctor called in by a midwife, irrespective of means, and to recover the cost in cases where this can be done ; and (2) To supply each midwife with lists of doctors who have undertaken to do this work.



*Puerperal Fever.*

There were 170 cases of Puerperal Fever notified in 1916, with 31 deaths, as compared with 161 and 36 deaths in 1915, and 149 cases with 33 deaths in 1914.

Of the 170 cases of Puerperal Fever 88 occurred after the birth of a living child, equal to one case in 234 births, while 82 cases occurred after miscarriages and still-births.

Of the 88 cases occurring after live births 51 were in the practice of midwives, equal to one in 255, and 37 cases were in the practice of private medical men, or in Institutions, equal to one in 205 births.

Of the 31 deaths 16 followed on live births, equal to one death in every 1,289 births, and 13 after abortions, and 2 after still-births.

The arrangements at the Women's Hospital for dealing with Puerperal Fever patients have proved to be a great boon—practically no cases have been refused during the year.

Of the 170 notified cases 141 were removed to Hospital, with 19 deaths. All that has been necessary is for the doctor to report the case by telephone, and the Public Health Department have sent an ambulance and removed the sufferer to Hospital. The cost of this hospital treatment by the best gynæcologists has been £1,008 per annum, £7 3s. per case in 1916, as compared with 137 cases admitted and £7 7s. per case in 1915, and 114 cases and £8 17s. in 1914.

Puerperal Fever is a disease which should not exist if it were possible in practice to have satisfactory conditions at all confinements. In the best hospitals and in good obstetric practice the condition is exceedingly rare. Of the 170 cases occurring in 1916, as in previous years, the majority were notably not in the poorest class of district. Yet in these cases, the preparation for the confinement is of the scantiest, and often labour takes place on a filthy bed, within filthy surroundings. The experience of many years goes to indicate that the greatest cause is haste on the part of those in attendance, which prevents proper aseptic conditions being observed. This haste is often meant to relieve the mother. It is difficult to see what practical steps can be taken to remedy it other than drawing particular attention to it. It is almost certain that the removal of women from their dirty homes would not entirely prevent the occurrence of these distressing cases. Puerperal Fever occurs as frequently in the practice of doctors as of midwives, because the infection is much more frequently conveyed by the doctor or midwife than by the surroundings.

*Supervision of Midwives.*

One certificated midwife employs her whole time in inspecting the equipment and practice of the midwives and dealing with the numerous points which arise in carrying out the provisions of the Midwives Act, 1902, and the rules of the Central Midwives Board.

During 1916 proceedings were taken against three women for practising midwifery habitually, and for gain, without being certified under the Midwives Act. In one case a fine of £15 was imposed; in the second case a fine of £8; and in the third case a fine of £5.

The following statement shows the action taken against those midwives whose cases were serious enough to bring before the Local Supervising Committee (The Public Health Committee):—

No. of Midwife.	Charge.	Committee's Decision.			Decision of Central Midwives Board.
947	General neglect	...	Severely cautioned	...	—
590	Neglect in case of Ophthalmia	... ..	Prima facie case sent to C.M. Board	... ..	Cautioned, and put on probation for 6 months, then no further action
3412	Negligence in case of Puerperal Fever	... ..	Severely cautioned	...	—



No. of Midwife.	Charge.	Committee's Decision.			Decision of Central Midwives Board.
7434	Negligence in case of Puerperal Fever ...	Prima facie case sent to C.M. Board ...	...	...	Certificate cancelled, and name removed from Roll
20434	Drunk while in attendance, etc. ...	Prima facie case sent to C.M. Board ...	...	...	Certificate cancelled, and name removed from Roll
4827	Lack of cleanliness and neglect of rules ...	Prima facie case sent to C.M. Board ...	...	...	Certificate cancelled, and name removed from Roll
16903	Negligence in case of Puerperal Fever ...	Prima facie case sent to C.M. Board ...	...	...	Certificate cancelled, and name removed from Roll
4872	Neglect in Case of Ophthalmia, child blind in both eyes ...	Prima facie case sent to C.M. Board ...	...	...	Certificate cancelled, and name removed from Roll
10226	Gross neglect at confinement ...	Prima facie case sent to C.M. Board ...	...	...	Certificate cancelled, and name removed from Roll

*Still-births in the practice of Midwives.*

There were 337 still-births in the practice of midwives in 1916, equal to 1 in 40 live births. In about 50% of these cases there is maceration at the time of birth, so that death had taken place in utero some time before labour commenced. In some of the cases, however, where the infant did not show maceration, and was full time, the still-birth was probably due to defective midwifery, either by not quickly recognising a danger sign or by allowing great delay. Details of these 337 still-births are given in the following table:—

Condition of Child and presentation.	Total Still-births.	Full Time.	Eighth Month.	Earlier than eighth month.
Macerated ...	166	69	39	58
Not macerated ...	171	101	19	51
Vertex ...	256	138	47	71
Breech ...	35	13	7	15
Footling ...	25	8	3	14
Transverse ...	3	2	—	1
No information ...	18	9	1	8

*Ophthalmia Neonatorum.*

There were 334 cases of Ophthalmia Neonatorum reported by doctors and midwives during 1916. This is equal to one case in every 62 births. In 1915 there was one case in every 65 births.

There can be no doubt however that these figures grossly overstate the occurrence due to Gonorrhœa. It is the duty of the midwife to report any case of inflammation of the eyes.

Of the 334 notified cases 7 left the town, 17 died during the year, 2 are still under observation, 10 had permanently damaged eye or eyes, and 298 recovered completely.

The following table shows the extent and nature of the damage in the case of children who are still alive:—

Position in Family.	Treatment commenced day of disease.	Doctor or Midwife.	Treatment by.	Condition of eyes at completion of treatment.
1st	8th	Doctor	Eye Hospital (In-patient)	Right eye, normal.
1st	1st	Doctor and Midwife.	Doctor and Eye Hospital.	Left eye, very slight opacity.
1st	2nd	Doctor and Midwife.	Doctor.	Right eye, sight lost.
				Left eye, normal.
				Right eye, normal.
				Left eye, completely destroyed.

Position in Family.	Treatment commenced day of disease.	Doctor or Midwife.	Treatment by.	Condition of eyes at completion of treatment.
1st	11th	Midwife.	Doctor.	Right eye, slightly defective. Left eye, normal.
2nd	1st	Doctor.	Doctor and Eye Hospital.	Right eye, slightly defective. Left eye, normal.
3rd	17th	Doctor and Midwife.	Eye Hospital.	Right eye, completely damaged. Left eye, normal.
1st	1st	Born in Infirmary.	Infirmary and Eye Hospital.	Right eye, normal. Left eye, very defective sight.
?	?	Doctor.	Doctor.	Right eye, slightly defective. Left eye, normal.
3rd	4th	Midwife.	Eye Hospital.	Right eye, normal. Left eye, very defective.
2nd	5th	Doctor.	Eye Hospital (In-patient).	Both eyes, very defective.

### III.—INFANT WELFARE.

The main object of the Infant Welfare Campaign which has been so successfully commenced is to improve the health and physique of the coming generation by giving the babies and young children a good start in the world.

Incidentally, this improvement will prevent many illnesses, some of which might have caused death. Before describing what has been done it is well to look at the question of mortality among infants and young children, and the kind of diseases which have caused their deaths, for up to the present time reduction in mortality is the only means we have of accurately measuring the effectiveness of the work.

Infant mortality is stated as a rate per 1,000 babies born during a year. We have accurate figures of the number of births, and there is, therefore, no need for hesitation in accepting the figures, like there is at the present time in the case of the general death-rate, on account of the difficulty of estimating the number of people living in Birmingham.

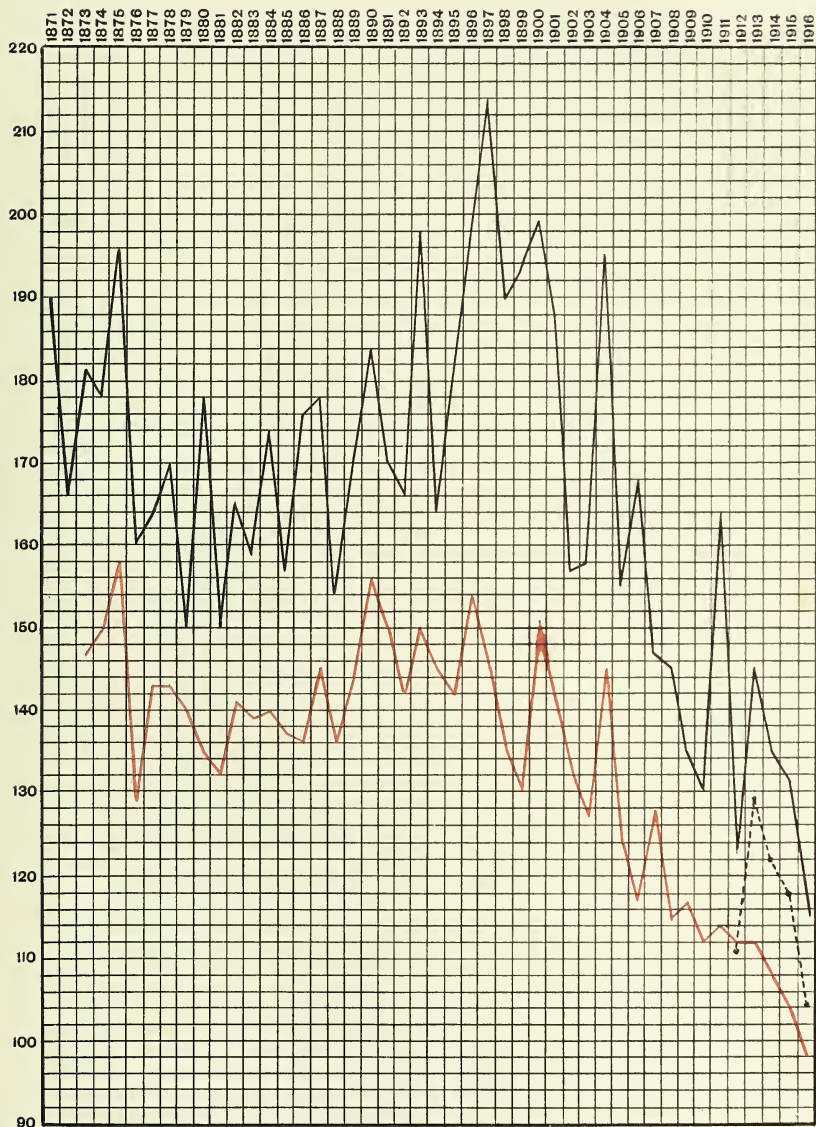
The chart on the opposite page shows the infant mortality rate for each year since 1871 for the city area of Birmingham as it existed before the recent extension. It is, unfortunately, impossible to obtain Infant Mortality rates for the present area of the City for a long series of years, but the figures since 1901 are shown by a dotted line. The old city area contains nearly the whole of the poorest section of the people, and the reduced mortality in it therefore indicates the progress made in warding off fatal illnesses among the particular classes where infant deaths are most numerous. It will be seen that almost continuously since definite effort was commenced, in 1900, infant mortality has fallen. For the old city area, as well as for the present area, the rate for 1916 was the lowest on record. It is frequently said that high infant mortality occurs during hot summers, and that the recent diminution is due to a sequence of cool summers causing fewer diarrhoea deaths.

To show that this is not the true explanation, the number of deaths from diarrhoea and enteritis has been subtracted from the total, and the remainder worked out as yearly infant mortality. This is indicated by the red line, which shows that the mortality among infants from all other diseases has declined almost continuously, and very definitely since effort has been expended. That is to say, the work done has been successful, and may with safety be extended.

The total number of infants who died in 1916 was 2,142, as compared with 2,490 in 1915, giving an infant mortality rate of 104, against 118. The comparative figures for the six largest English provincial towns were as follows:—

Birmingham	...	...	104 per thousand.	Sheffield	...	...	109 per thousand.
Liverpool	...	...	116     "	Leeds	...	...	126     "
Manchester	...	...	109     "	Bristol	...	...	96     "

INFANT MORTALITY IN BIRMINGHAM PER 1,000 BIRTHS.



ALL CAUSES (OLD CITY AREA) —————  
 ALL CAUSES LESS DIARRHŒA AND ENTERITIS —————  
 ALL CAUSES (ENLARGED CITY) - - - - -



The following figures are taken from the last report of the Commissioners of Health of Queensland, a country with a population of 687,010 in 1915, a birth-rate of 29.35, a general death-rate of 11.0 per 1,000, and an infant mortality rate of 64.33.

*Rates of Infant Mortality in various Countries.*

Country.	Year.	Infant Mortality Rate.	Country.	Year.	Infant Mortality Rate.
Queensland ...	1915	64	Denmark ...	1913	94
New South Wales ...	1915	67	Scotland ...	1913	110
Victoria ...	1915	68	France ...	1912	78
South Australia ...	1915	67	Canada ...	1913	117
West Australia ...	1915	66	England ...	1913	108
Tasmania ...	1915	72	Belgium ...	1912	120
Sweden ...	1911	72	Holland ...	1913	91
Ireland ...	1913	97	Italy ...	1912	130
Switzerland ...	1912	94	German Empire ...	1912	147

In the following table is set out the mortality rate for infants in each Ward of the City during 1916, and also the mean rate for the 5 years, 1912-1916:—

*Infant Mortality.*

		1916.	Average 1912-1916.	
Central Wards.	(St. Paul's ...	160	156	Average, 161.
	St. Mary's ...	159	194	
	Duddeston and Nechells	164	171	
	St. Bartholomew's	139	166	
	St. Martin's and Deritend	150	154	
	Market Hall	139	145	
	Ladywood	121	140	
Middle Wards.	(Lozells ...	82	101	Average, 101.
	Aston ...	114	124	
	Washwood Heath	93	102	
	Saltley ...	79	95	
	Small Heath	69	89	
	Sparkbrook	70	90	
	Balsall Heath	62	83	
	Edgbaston ...	98	90	
	Rotton Park	96	121	
Outer Wards.	All Saints'	96	112	Average, 77.
	(Soho ...	91	91	
	Sandwell ...	68	80	
	Handsworth ...	91	85	
	Erdington, North	80	80	
	Erdington, South	39	72	
	Yardley ...	83	79	
	Acoc's Green ...	76	86	
	Sparkhill ...	55	61	
	Moseley and King's Heath	76	66	
	Selly Oak ...	83	77	
	King's Norton ...	61	77	
	Northfield ...	59	80	
	Harborne ...	69	69	
	City ...	104	117	

It will be seen that the rate is more than twice as high in the Central Wards as in the artisan districts in the suburbs. St. Mary's Ward is much higher than any of the others. This Ward is bounded principally by Hospital Street, Hockley Brook, Dartmouth Street, Coleshill Street, and Whittall Street.

The causes of death of the 2,142 infants are set out in the accompanying table, divided according to ages.

*Infantile Mortality during the Year 1916.*

*Deaths from Stated Causes in Weeks and Months under One Year of Age.*

CAUSE OF DEATH.	Weeks.				Total under one m'nth	Months.				Total Death under 1 year.
	0-	1-	2-	3-		1-	3-	6-	9-	
Smallpox ... ..	—	—	—	—	—	—	—	—	—	—
Chicken-pox ... ..	—	—	—	—	—	—	—	—	—	—
Measles ... ..	—	—	—	—	—	—	—	6	10	16
Scarlet Fever ... ..	—	—	—	—	—	—	—	1	1	2
Whooping Cough ... ..	—	—	2	1	3	24	36	44	55	162
Diphtheria and Croup ... ..	—	—	—	—	—	—	1	1	4	6
Erysipelas ... ..	—	—	—	1	1	—	1	—	—	2
Tuberculous Meningitis ... ..	—	—	—	—	—	1	4	5	5	15
Abdominal Tuberculosis ... ..	—	—	—	—	—	1	5	8	4	18
Other Tuberculous Diseases ... ..	—	—	1	—	1	2	1	1	2	7
Cerebro-Spinal Fever ... ..	—	1	—	—	1	—	—	2	—	3
Meningitis (not Tuberculous) ... ..	—	—	1	—	1	2	9	8	10	30
Convulsions ... ..	16	6	10	3	35	29	33	18	18	133
Laryngitis ... ..	1	—	—	—	1	—	—	—	3	4
Bronchitis ... ..	2	8	6	8	24	50	37	45	23	179
Pneumonia (all Forms) ... ..	1	1	3	2	7	38	56	67	76	244
Diarrhoea ... ..	—	1	3	1	5	28	21	27	12	93
Enteritis ... ..	1	2	2	2	7	44	73	41	31	196
Gastritis ... ..	—	1	4	1	6	20	16	7	4	53
Syphilis ... ..	1	2	3	1	7	22	8	6	1	44
Rickets ... ..	—	—	—	—	—	—	4	2	5	11
Suffocation (Overlying) ... ..	2	—	—	4	6	16	4	1	—	27
Injury at Birth ... ..	1	—	—	—	1	—	—	—	—	1
Atelectasis ... ..	18	1	3	—	22	1	—	—	—	23
Congenital Malformations ... ..	30	12	8	4	54	14	6	1	3	78
Premature Birth ... ..	281	34	28	16	359	36	9	—	—	404
Atrophy, Debility and Marasmus ... ..	68	27	15	21	131	60	41	24	7	263
Other causes ... ..	47	9	7	3	66	18	20	12	12	128
All causes ... ..	469	105	96	68	738	406	385	327	286	2,142

The next table shows the mortality from certain important causes in the Central, Middle and Outer Wards respectively, during the last 5 years, the figures for 5 years being used in order to avoid erroneous results due to the figures being too small.

*Infant Mortality.*

*In Groups of Wards, 1912—1916.*

	RATE PER 1,000 BIRTHS.			
	Central Wards.	Middle Wards.	Outer Wards.	City.
Measles ... ..	4.18	2.69	1.89	3.01
Whooping Cough ... ..	6.49	4.89	3.89	5.20
Tubercular Diseases ... ..	4.32	2.51	1.75	2.89
Meningitis ... ..	2.72	2.02	1.19	2.02
Convulsions ... ..	7.70	5.29	5.08	6.02
Bronchitis ... ..	12.59	8.23	4.41	8.62
Pneumonia ... ..	16.86	9.74	7.04	11.38
Diarrhoea and Enteritis ... ..	33.22	16.14	7.91	19.64
Gastritis ... ..	3.96	2.00	1.96	2.61
Syphilis ... ..	2.45	1.13	0.84	1.59
Accidental Suffocation ... ..	6.60	2.40	0.88	3.36
Congenital Malformations ... ..	3.44	4.16	3.82	3.87
Premature Birth ... ..	23.07	19.61	18.56	20.61
Atrophy, Debility, and Marasmus ... ..	25.57	13.72	10.05	16.88
All Causes ... ..	164	103	78	117



As regards Congenital Malformations and Premature Birth there is not a very wide variation in the three groups of Wards, but in every other instance the mortality is greatly in excess in the Central Area. The worst example is accidental suffocation, which caused seven times as many deaths in the Central as in the Outer Group. Similarly, the mortality from diarrhoea was four times as high, from bronchitis three times as high, from debility two-and-a-half times as high, and from pneumonia twice as high.

The causes of death during 1916 may be conveniently grouped for purpose of inquiry as follows:—

- |                           |   |                     |
|---------------------------|---|---------------------|
| 1. Congenital Defects     | } | 768 deaths in 1916. |
| Prematurity,              |   |                     |
| Debility and Atrophy,     |   |                     |
| Marasmus,<br>Atelectasis. |   |                     |

Here it will be observed that 74% of the deaths occurred in the first month, while 88% occurred before the infant was three months old. Many of the abortions, miscarriages and still-births may be grouped with these, and indicate what a large share disease and ill-health in the mother has in causing loss of life in the infant. Unfortunately, no one has suggested an easy remedy for this serious loss. All that can be said is that we now recognise the magnitude of the loss and that much tentative investigation work is being done.

- |               |   |                     |
|---------------|---|---------------------|
| 2. Diarrhoea, | } | 342 deaths in 1916. |
| Enteritis,    |   |                     |
| Gastritis.    |   |                     |

Here the high mortality does not begin during the first month, when most infants are breast-fed. The attacks are very fatal from the second to the ninth month, but continue to be severely fatal even after this age. These are mostly healthy children, where gastric disturbance commences by reason of irregular and improper artificial feeding. Almost the whole of these deaths occur in the poorest areas. Indeed, it is safe to assert that the whole of these deaths occur in the half of the population who live in the smallest houses. The cause is quite sufficiently known to enable us to say that ignorance of the requirements of infant life is the great and paramount cause. It is not the size of the house, or the quality of the milk supply, but ignorance and consequent carelessness of the mothers. They do not understand the need for regularity and extreme cleanliness in artificial feeding of babies. The establishment of Infant Welfare Centres and of Health Visiting will slowly reduce this group of specially wasteful deaths, for, as already stated, many of these children are born healthy and vigorous. There are, of course, many secondary causes which contribute their quota, but the mother's lack of knowledge is by far the most important.

- |                              |   |                     |
|------------------------------|---|---------------------|
| 3. Bronchitis,<br>Pneumonia. | } | 423 deaths in 1916. |
|                              |   |                     |

Here the mortality is heaviest after the sixth month. Again, want of appreciation of the needs of the infant plays the most important part. It is only fair to say that even careful mothers have greater difficulty in warding off attacks of bronchitis and pneumonia in very young children than in the case of the diarrhoeal diseases. That it is mainly ignorance is indicated by the fact that of the 423 deaths during the first year of life in 1916 50% occurred in a population of 24,000 living in the Central Wards of the City, 35% in a population of 375,000 in the middle ring of Wards, and 15% in a population of 280,000 in the outer and better-class wards. The mothers in the Centre did not know, while at the same time they had greater difficulties to contend with in their smaller houses.

- |   |   |                     |
|---|---|---------------------|
| 4. Convulsions and<br>Meningitis.   | } | 163 deaths in 1916. |
|   |   |                     |
| 5. Measles,<br>Whooping Cough,<br>Scarlet Fever<br>Diphtheria,<br>Syphilis. | } | 230 deaths in 1916. |
|   |   |                     |
|   |   |                     |
|   |   |                     |
|   |   |                     |

6. Suffocation (overlying) ... 27 deaths in 1916.

Of the 27 deaths 15 occurred in the Central Wards, 10 in the middle ring of Wards, and 2 in the outer ring. Nearly all the cases are due to taking babies into bed with their mothers. Of the 27 deaths 5 occurred on a Saturday, 10 on a Sunday, and 4 on a Monday, leaving only 8 on the other days of the week.

7. All other causes of infant deaths. } 189 deaths in 1916.

#### *Prevention of Infant Mortality.*

The work of prevention of infant mortality and of improving infant health has been entrusted to a Special Sub-Committee of the Public Health and Housing Committee, which now contains three ladies co-opted for their special knowledge, in addition to the ordinary Council representatives, Mrs. Walker being appointed Chairman in November, 1916.

Two organisations are in existence for dealing directly with the problems: (1) the Infant Welfare Centres and the workers attached to these; and (2) the Health Visitors, who work mostly in areas not covered by the Centres.

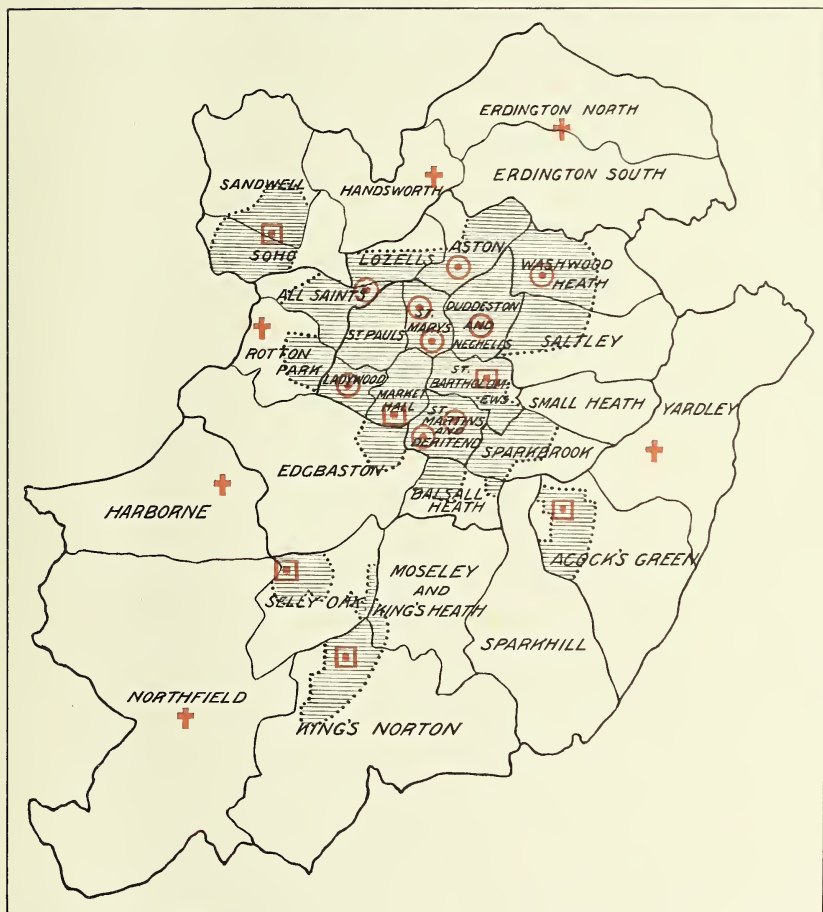
Each of the Infant Welfare Centres has a definite area allocated to it, and the situation of these areas is indicated on the accompanying diagram. This shows the Centres and areas already established by the Municipality, those already established by voluntary associations, and those in contemplation as new areas and centres.

About 96% of all the births are notified under the Notification of Births Act, so that an almost complete list can be supplied day by day of the houses that require to be visited. Visits are paid generally after the Midwife or Doctor has left off attendance by the Infant Welfare Worker from the particular centre, or in the case of those districts not covered by a centre, by one of the trained Health Visitors.

The object of a visit is to see if skilled advice is necessary in the feeding and nursing of the new baby. In many cases a second visit is not indicated, but in others the mother is asked to bring the baby regularly to the centre or further visits are paid at a later date. Each centre confines its operations to babies born in its own area.

A list of the Centres already established is set out in the table on the next two pages, together with certain details as to the paid staff and the work carried on.

# MATERNITY AND CHILD WELFARE.



MUNICIPAL CENTRES

VOLUNTARY CENTRES

AREAS SERVED BY THEM

SUGGESTED NEW CENTRES





# MUNICIPAL MATERNITY AND INFANT WELFARE CENTRES.

	17 Bloomsbury Street.	St. John's Mission Room, Darwin Street.	Provident Dispensary, Farm Street.	108 Hope Street	41 Lichfield Road.	St. Edward's Mission Room, New John Street West.	131 St. Vincent Street.	74 Washwood Heath Road.
Infant Consultation	Tuesday, 10—12; Wednesday, 2—4	Wednesday, 2—4	Tuesday and Thursday, 2—4	Tuesday and Thursday, 2—4	Monday, Tuesday, Thursday, and Friday, 2—4.30	Tuesday and Thursday, 2—4	Monday and Friday, 2—4	Wednesday and Friday, 2—4
Ante-Natal Consultations	Wednesday, 10.30	Seen at Hope Street	Tuesday, 2 p.m.	Tuesday, 10.30	Wednesday, 2—4	Seen at St. Vincent Street	Friday, 10.30	By appointment
Name of Doctor	Dr. Molloy	Dr. Hill	Dr. Macrone	Dr. Hill	Dr. Fairley	Dr. Molloy	Dr. Molloy	Dr. Macrone
Trained Workers	Mrs. Bennett Miss Hillman Miss Snell Miss Bennett	Miss Goodwin Miss Graham Miss Brooke	Miss Brownfield Miss Waterhouse	Miss Lloyd Miss Rose Mrs. Hill Miss Salter	Mrs. Youngson Miss Rawlings Miss Hague Miss Billings	Mrs. Wilkinson Miss Cousins	Miss Hillas Miss Young Miss Pickering Miss Moss	Mrs. McMullen Mrs. Brett Mrs. Hill Miss Pole
Sewing Class	To be arranged	—	—	Mrs. Mason, 2—4	Wednesday, 2—4	—	Mrs. Mason, Wednesday, 2.30—4.30	Monday, 2—4
Cookery Class	Mrs. Broadhurst, Wednesday, 2.30	—	—	—	Infant foods only	—	Citizens' Committee, Friday evening	Once a month
Midwife Helper	Mrs. Hooper	—	—	—	—	—	Mrs. Neale	—
Clerk	Miss Craig	Miss Brittain	—	Miss Brittain	Miss Dixon	Miss Craig	Miss Brittain	—
Voluntary Helper	—	—	—	Mrs. Chovrl and friends	Local Committee	—	Mrs. Pearce, Fridays	Miss Teall and others
Thrift Club	—	—	—	Yes	Yes	—	Citizens' Committee	Yes
Caretaker	Miss Hill	Mrs. Dixon	Mrs. Mann	Mrs. Grace	Mrs. Crisp	Mrs. Wadsworth	Mrs. Miller	Mrs. Stanton



# VOLUNTARY MATERNITY AND INFANT WELFARE CENTRES.

14

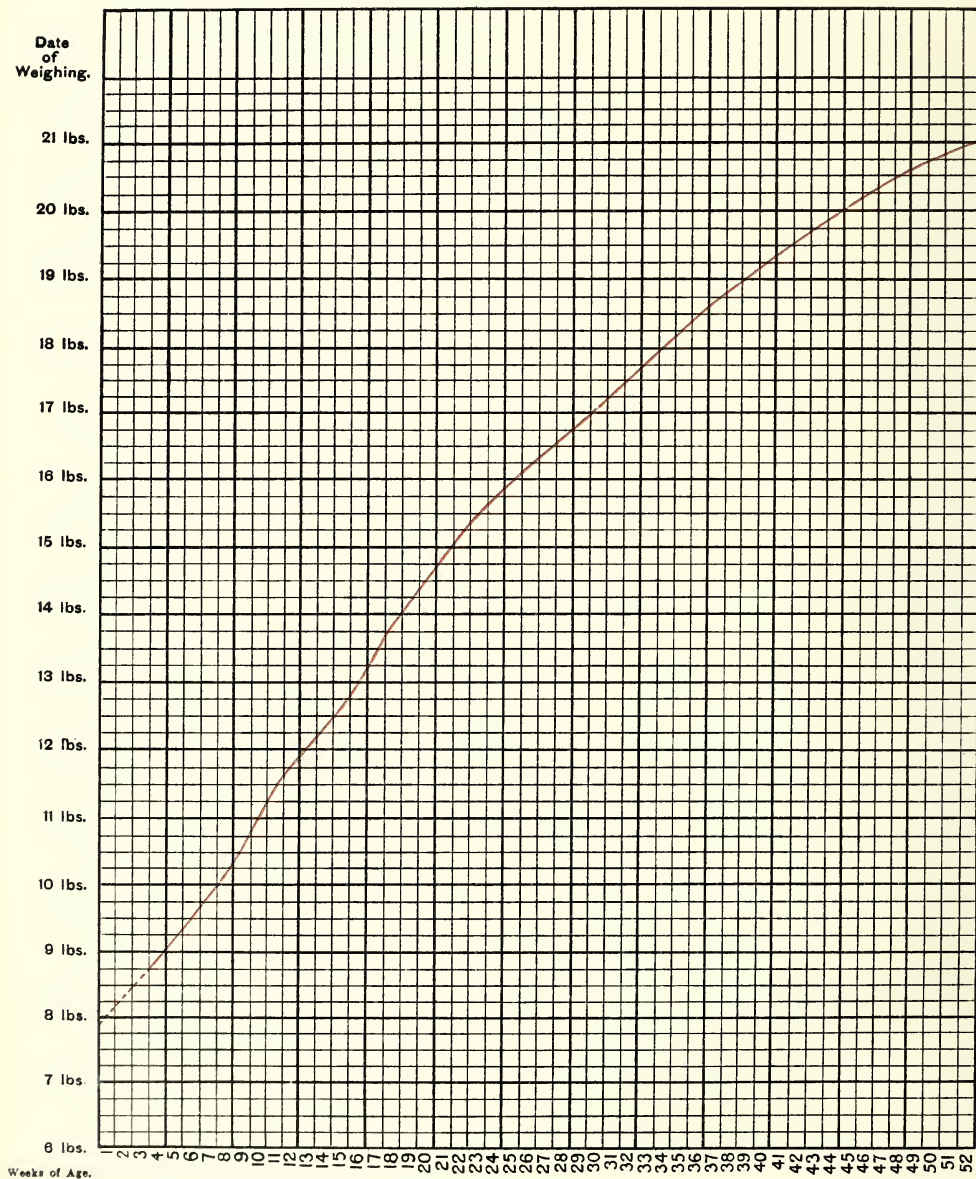
	Floodgate Street and River Street.	Village Bells, Harborne Lane, Selly Oak.	38 Latimer Street.	Lea House, Road, Strichley.	Stanforth Hall, Stanforth Street.	Friends' Institute, Warwick Road, Greet.	6 Holyhead Road, Handsworth.
Infant Consultation ...	Wednesday after- noons	Thursday after- noons	Tuesday after- noons	Thursday after- noons	Thursday after- noons	Wednesday after- noon (older children 1st Friday in month)	Mondays and Thursdays, 2—4
Ante-Natal Consultation ...	1st and 3rd Monday afternoons in month	Thursdays, 4	Tuesday after- noons	Thursday after- noons	Seen at Maternity Hospital, Tuesdays and Thursdays, at 10 a.m.	4th Monday after- noon	To be arranged
Name of Doctor ...	Dr. Walker and Dr. Notley	Dr. Walker	Dr. Walker	Dr. Aldridge	Dr. Fooks	Dr. Walker	Dr. Gorman and Dr. Burt
Trained Workers ...	Mrs. Peace and Mrs. Ralph	Miss Martin	Miss Walker and Miss Smith	Miss Wilks	Mrs. Fowles and Miss Hodges	Miss Russell	Miss de Ridder
Sewing Class ...	Thursdays, 2.30—4.30	Tuesdays, 2—4	Thursdays, 2—4	Wednesdays, 2—4	Wednesdays, 2—4	Mondays, 2—4	Wednesdays
Cookery Demonstrations ...	Thursdays, 2.30—4.30	As arranged	—	Fortnightly during winter	Monday after- noons	—	To be arranged
Midwife Helpers ...	—	—	—	—	—	Miss Shipway, Mrs. Stevens, Mrs. Wales	—
Clerical Work ...	Hon. Sec.	1 voluntary worker	—	Miss Wadsworth	Yes	Hon. Sec.	—
Voluntary Helpers ...	1 Visitor and Committee	Mrs. Wilson and 3 others	2 Visitors and 3 extra at consultations	1 or 2 of Committee occasionally	Ten	Nineteen	Forty
Thrift Club ...	Each afternoon	Monday after- noons and Tuesday mornings	Tuesday after- noons	Thursday after- noons	Monday (by visits)	At each meeting	To be arranged
Caretakers ...	—	Mrs. Prestidge	Mrs. Triggs	Mrs. Ballon	—	Caretaker of Friends' Hall	Mrs. Powell



Name..... Date of Birth.....

Method of Feeding.....

(8045)



So far as the Municipal Centres are concerned, the statistics for the year 1916 are set out below. Many of the figures are not quite comparable, as some of the Centres were not open for the whole year. The figures are being kept for the Voluntary Centres on the same lines for the year 1917, but they are not available for the whole of 1916. The work is, with minor differences, similar in all the Centres.

*City of Birmingham Infant Welfare Visitors' Yearly Return.*  
*Year ending December 30th, 1916.*

	Bloomsbury Street.	Darwin Street	Farm Street (from July 22)	Hope Street	Lichfield Road (from Aug. 12)	New John Street West	St. Vincent Street	Washwood Heath (from July 22)	TOTAL.
Deaths registered under 1 year ... ..	175	114	34	135	39	149	144	20	810
Births reported (including Still-births)...	1,253	1,359	697	1,176	886	1,253	1,382	470	8,476
No. excluded from Visiting ... ..	28	28	1	20	4	32	25	10	148
Primary visits paid to Infants ... ..	1,252	1,313	631	1,143	817	1,224	1,353	410	8,143
Attended by Doctor ... ..	287	355	208	315	217	238	558	157	2,335
Midwife ... ..	915	915	412	776	574	928	745	245	5,510
In Institution ... ..	50	43	11	52	26	58	50	8	298
No. of Illegitimate Births ... ..	34	22	11	30	12	23	33	10	175
No. of Premature Births ... ..	68	44	10	44	23	53	59	12	313
Feeding at First Visit—Breast only ... ..	1,061	1,124	444	1,007	654	1,097	1,177	318	6,882
Artificial partially ... ..	55	24	58	24	32	20	30	33	276
Artificial entirely ... ..	63	99	110	63	91	46	92	43	607
Still-born or Dead ... ..	73	66	19	49	40	61	54	16	378
Condition at First Visit—Good ... ..	950	1,137	494	920	738	1,025	1,055	319	6,638
Fair ... ..	178	91	100	152	36	125	193	66	941
Bad ... ..	45	15	15	20	3	12	47	10	167
Dead ... ..	34	32	15	28	22	26	23	9	189
Still-born ... ..	45	38	7	23	18	36	35	6	208
Health of Mother—Good ... ..	1,058	1,047	426	842	688	1,007	1,085	298	6,451
Fair ... ..	145	204	185	264	122	190	156	84	1,350
Bad ... ..	41	59	15	37	4	24	111	25	316
Dead ... ..	8	3	5	—	3	3	1	3	26
No. at Work during Pregnancy ... ..	473	374	98	330	281	566	433	51	2,606
No. of Infants Still-born ... ..	10	22	3	14	—	18	23	2	92
No. of Infants Premature ... ..	17	21	2	19	3	33	32	1	128
Periodical revisits to Infants and Children ..	5,992	3,611	448	5,667	951	4,312	3,682	908	25,571
Special revisits ... ..	728	791	542	770	185	1,734	547	415	5,712
Visits at 1 year old ... ..	914	1,336	—	680	23	864	795	—	4,612
No. Breast-fed for First Six months ...	617	838	—	471	19	588	506	—	3,039
Given up on account of Mother's Health	237	324	—	120	2	205	194	—	1,082
Given up on account of Child's Health	10	71	—	25	2	4	9	—	121
Given up on account of Mother going to work	50	103	—	64	—	67	86	—	370
Health of Child—Good ... ..	783	1,070	—	522	19	659	564	—	3,617
Fair ... ..	107	195	—	142	—	175	164	—	783
Bad ... ..	24	71	—	16	4	30	67	—	212
Mother resumed Work since Confinement	214	299	—	111	—	272	135	—	1,031
Primary visits to expectant Mothers ... ..	35	1	3	33	—	13	26	20	131
Revisits to expectant Mothers ... ..	11	—	5	70	—	—	37	6	129
Total visits and revisits ... ..	8,932	7,052	1,629	8,363	1,976	8,147	6,440	1,759	44,298
Total babies at Consultations—Under 1 year	1,889	2,387	1,238	2,985	757	3,332	4,125	781	17,494
Over 1 year ... ..	318	538	65	699	160	552	484	208	3,024
No. seen by Doctor ... ..	325	341	540	377	516	475	760	361	3,695
Fresh babies at Consultations—Under 1 year	299	442	320	524	244	568	748	234	3,379
Over 1 year ... ..	155	79	52	202	82	157	214	85	1,026
Total expectant Mothers at Consultations	42	—	4	244	—	100	159	12	561
Attendances at Sewing Classes ... ..	—	—	—	461	—	—	230	92	783
Attendances at Cookery Classes ... ..	—	—	—	12	—	—	—	105	117

During 1916 considerable extension of the work was ordered by the Public Health Committee. New Centres are to be established in a number of districts and further staff employed. The great difficulty at present is in finding accommodation in suitable buildings for these new Centres, and much delay is being experienced because it is impossible to spend money at present on the erection of buildings in the right situation.

The Chart on the opposite page shows the average weights of babies at different ages during the first year. Only babies were included who were not suffering from any severe illness.

## IV.—CARE OF CHILDREN UP TO FIVE YEARS OF AGE.

An endeavour has been made to commence the work of looking after the children up to 5 years of age at the Infant Welfare Centres and by the Visitors to the houses. There are approximately 79,000 children between 1 and 5 years of age in the City. These children are liable to certain diseases, some of which cause an immediate high mortality, while in other cases permanent ill-health results. They also suffer from improper feeding and lack of attention. It is anticipated that on an average each infant under 1 year of age should be seen eight times during its first year of life, and each toddler once or twice a year during its subsequent years.

This would mean for one-half of the infants born approximately 80,000 visits or attendances at the Centres and 120,000 for the toddlers.

The diseases causing mortality among toddlers differ considerably from those of the babies, as well be seen from the following groups :—

Group I.	Measles	...	...	...	...	72 deaths.
" II.	Whooping Cough	...	...	...	...	206 "
" III.	Diphtheria	...	...	...	...	57 "
" IV.	Scarlet Fever	...	...	...	...	15 "
" V.	Tuberculosis (all forms)	...	...	...	...	111 "
" VI.	Bronchitis and Pneumonia	...	...	...	...	380 "
" VII.	Diarrhoea and Enteritis	...	...	...	...	115 "
" VIII.	Burns	...	...	...	...	36 "
" IX.	All other causes	...	...	...	...	283 "

The total deaths of children between 1 and 5 years of age numbered 1,275 in 1916, giving a death-rate of 16·1. Much can be done to limit this mortality and avoid bad health by timely advice.

These children are not usually those born in a weakly condition, often they are the most robust, and having escaped the danger of the first year may be regarded as sound lives. It is, therefore, very important that their mothers should know how to prevent death when many of the so-called simple ailments of childhood overtake them.

This mortality is clearly due to ignorance and is preventable. It does not take place among the middle and better-classes, where there is not so much ignorance. Measles, whooping cough, diphtheria, bronchitis, and pneumonia and diarrhoea should not cause death if care is taken early enough and continuously.

Then it is found that during these early years the commencement of many ailments are met with which lead to inefficiency in later years, *e.g.*, rickets, carious teeth, spinal curvature, adenoids, rheumatic conditions. All of these can be dealt with at the Welfare Centres by timely advice as to what should be done.

*The Cost to the Municipality of the Maternity and Child Welfare Work.*

The whole of the cost of the Municipal Centres and Health Visitors, two-thirds of the cost of the Voluntary Centres, and the cost of the Maternity and Women's Hospital work is paid for by the Corporation, but one-half of this total is refunded by grant from the Local Government Board.

The estimated cost for the year 1917 is as follows :—

Salaries	...	...	...	...	...	£9,824
Expenses of Municipal Centres	...	...	...	...	...	£1,833
Grants to Voluntary Centres	...	...	...	...	...	£3,820
Alteration and equipment of new premises	...	...	...	...	...	£1,210
Treatment of Puerperal Fever	...	...	...	...	...	£1,008









